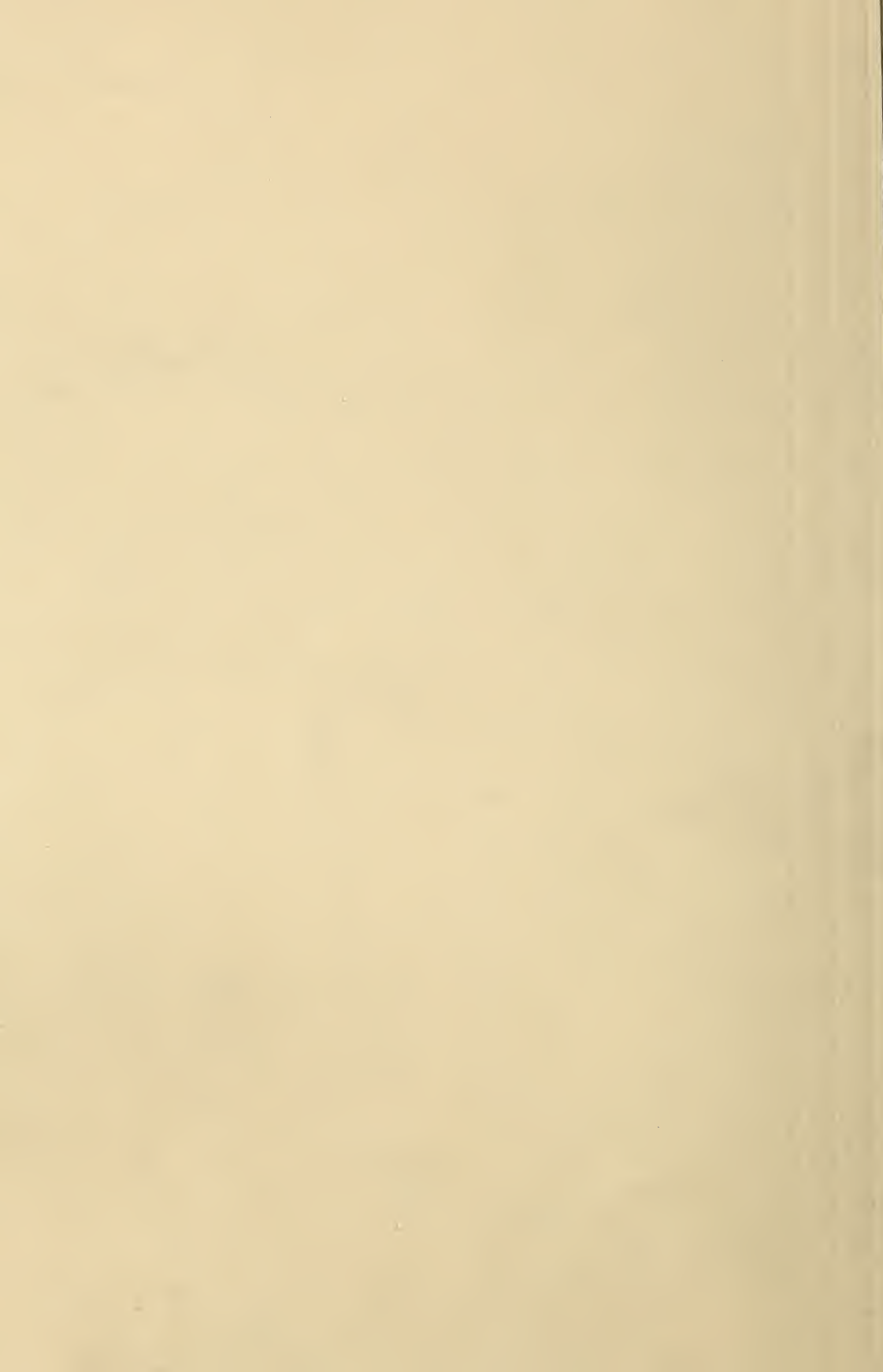


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Gleanings in Bee Culture



VOL. XLI. SEPT. 15, 1913, NO. 18.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan & Cherry Sts., San Antonio, Texas



Factory and Warehouse

To Our Friends and Patrons:

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we were compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past years.

Although it has been a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the $5\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the ten-frame hives.

It is the intention of the present management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our catalog on request. Address

Toepperwein & Mayfield Co., San Antonio, Tex.

Gleanings in Bee Culture

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VOL. XVI.

SEPTEMBER 15, 1913.

NO. 18.

Editorial

SUGAR TO BE ON THE FREE LIST IN THREE YEARS.

JUST as we go to press, the Senate has passed the tariff bill under which there will be a reduction of 50 per cent in the duty on sugar, with the further provision that it will be placed on the free list in three years. The bill is yet to go to a conference between the two Houses, but it is not expected that any great change will be made. As we said before, we do not believe that free sugar is going to make cheaper honey. Honey has a flavor peculiar to itself; is easily digested, and belongs to a class by itself. It will, therefore, command its own price, just as it has always done, in the face of the fact that glucose syrups are sold from one-half to one-third the price of good extracted honey.

HONEY A CONCENTRATED FOOD.

THE following item from the *Farm Journal* appears to contain considerable truth:

POINTS ON HONEY AS FOOD.

Honey is one of the driest of human foods as it usually has less than 20 per cent of water. Beefsteak, of the most expensive kind, contains 65 per cent, and then there is some bone to be reckoned with. Some of our most expensive fruits and vegetables are nearly all water, 95 per cent, and some even more. This is a point that beekeepers can harp on a good deal. Anybody can easily see that between a pound of steak and a pound of honey at the same money, the advantage lies with the honey. Moreover, honey will keep indefinitely, whereas beefsteak deteriorates in a few hours. Actually, honey improves with age. Add to this the fact that honey is one of the very few predigested foods.—*The Farm Journal*.

Honey is a concentrated food. It is a predigested sweet, and, unlike cane sugars, it is easily assimilated. We have been informed that the British army furnish their soldiers with a considerable amount of cane sugar, because it has been ascertained that sugar in the right quantities is a builder of flesh and muscle. If that is true of sugar it certainly must be true of honey.

HONEY - CROP CONDITIONS; THE SEVERE DROUTH, AND ITS POSSIBLE EFFECT ON CLOVER FOR NEXT YEAR.

AS the season goes on it is increasingly apparent that there was a big crop of clover honey in the north-middle Atlantic

States and in south-central Ontario. There has been, probably, a larger crop of clover honey produced this year than for many years back. The crop in the West, if we exclude California, has been about normal; but the severe drouth that has prevailed in some of the eastern States, and latterly through the central-middle States east of the Mississippi, has had a tendency to check the growth for next year. Some report that clover has been all killed out—so much so that they fear no amount of rain from now on will start the plants going. This is particularly so in New York where the season has been a failure and drouth most severe.

If the drouth has been general, it will have a tendency, of course, to stiffen prices on the 1913 product, as there will be some beekeepers who, rather than sell at low prices, will hold for another year. Of course comb honey will have to be sold this year; but as there is only a comparatively small amount of it, there will be no trouble in disposing of it at good prices.

Later.—The drouth has been broken in Kansas, Oklahoma, and Missouri. Refreshing rains have come in the East to some extent. Clover has a wonderful recuperative power, and it is surprising what a few rains will do.

A VISIT FROM A KENTUCKY BEEKEEPER.

GLEANINGS has recently been favored by a visit from Mr. Wallace K. Rheese, of Winchester, Ky. Mr. Rheese is the son of John R. Rheese, who invented the LaRheese bee-escape, which was sold quite extensively for a few years.

Mr. Rheese is a young man full of enthusiasm, who intends to make beekeeping his profession. He sold over \$1100 worth of honey this year from 55 colonies, spring count, and increased to 100 colonies, rearing his own queens from choice stock. In this connection we wish to refer to a statement that has been made, that the extensive producers of honey are nearly all men well along in years, the young men (the sons of these producers) going into other business. If this were true, it would look as though beekeeping were not very inviting

to the younger men. However, we have direct proof that such is not the case, in a good many instances at least, for we are personally acquainted with a good many young men who are going to be the extensive producers a few years hence—young men who are following in their fathers' footsteps.

The glare and glamour of the city draw many of the boys, and some of the best boys too, from the farms, fruit-ranches, poultry-farms, apiaries, etc.; but the introduction of modern improvements and labor-saving devices is going to correct in a short time this abnormal condition. Beekeepers as a class are just as progressive as farmers or fruit-growers, if not more so; and, if we are not mistaken, we believe the proportion of young men who are choosing beekeeping as an occupation or profession is larger than it ever was before.

"DOT MAKES NO NEFFER MIND;" THE HARD-
LUCK BEEKEEPERS AND FARMERS.

THE world is full of careless, happy-go-lucky people. There are some, it has been well said, who worry themselves into their graves over little things, and others who go to the poorhouse because they never worry about any thing. As illustrative of the latter class of people, Inspector Morris tells a good story; for at one time in his life he worked in a big shop where there were laborers, mechanics, pattern-makers, and artisans of all kinds. It seems there was an odd "character" in that shop by the name of Hans Drescher. Well, Hans went one day to Bill Huggins, the pattern-maker. "Say, Bill, vill you lent me your trawing-knife? I vant to do a leetle vork mit 'im."

It was contrary to Bill's practice to lend his tools; but seeing it was Hans he turned the tool over to him with the remark, "Be careful, Hans, and do not spoil that nice tool."

"All ride, Bill. I takes goot care mit 'im."

A few hours afterward, Hans came back.

"Bill, I made a nick out of dot knife; but dot makes no neffer mind."

The world is full of "dot makes no neffer mind" people. They borrow your tools for which you have paid good money. Likely as not they don't bring them back; or if they do, they return them practically worthless. But the tool-borrowers are not the only offenders. There is a class of "dot makes no neffer mind" who never get anywhere, and wonder why. They are their own worst enemies. Among them are some beekeepers.

They allow their bees to get to robbing,

but "dot makes no neffer mind," because "The other bees get the honey." There are some who leave their old combs exposed out in the open, making it possible to scatter bee disease if they come from an infected hive; but that "makes no neffer mind." They know nothing about bee disease, and care less. Others leave their nice sections on the hive too long. They become daubed with bee-glue, but "dot makes no neffer mind," because the honey is all there, forgetting that they have lost several cents a pound on what perhaps would have been otherwise fancy honey. There are others who never go down into their brood-nest in the spring to replace a failing queen or to strengthen a weak colony, but "dot makes no neffer mind," because the other colonies will get all the honey just the same. There are still others who do not look into the hive in the fall to see if they are in proper condition and have sufficient stores to go into winter quarters; but "dot makes no neffer mind."

Foul-brood inspectors often come across farmer beekeepers of the "neffer mind" class. Their colonies are in all kinds of hives from a nail-keg to a modern dovetailed hive; but in the latter, more than likely, the frames have never been removed, and the combs are built crosswise. Their farm wagons are left out in the open; barn doors are off their hinges; barnyard is reeking with liquid manure; cows stand up to their knees in it. Their fences are tumbled down, and the chickens roost all over the place. They don't seem to see that every day they are losing dollars and dollars. No wonder they have hard luck.

SOME NEW BULLETINS ON BEES.

DURING the last few months there have been some new bulletins on bees. Bulletin No. 49, from the Department of Agriculture, Albany, N. Y., is one of the best and most elaborate that has ever been printed. In addition it is beautifully illustrated with numerous fine engravings. It is written by no less an authority than W. D. Wright, one of the foul-brood inspectors of New York, and one of the best beekeepers in that State. The instructions are safe and orthodox so far as we have been able to see from a cursory examination. Particular attention is paid to the subject of bee diseases. This is followed by copies of the laws relating to bee disease and the spraying of fruit-trees. A large number of beautiful half-tone engravings appear, winding up with splendid illustrations of pickled brood and European foul brood. These are followed by a list of valuable articles that have been

read at the various conventions of the State associations.

EUROPEAN FOUL BROOD AND HOW PURE ITALIANS HASTEN ITS ELIMINATION.

One paper by the author, Mr. Wright, on the subject of Italian bees as a factor in the extermination of European foul brood, is particularly noteworthy. We quote:

When we consider that there is no other race or variety of bees that is so nearly exempt or immune to the ravages of this disease as the pure Italian, and that large or small apiaries of this race often pass through an epidemic of European foul brood of several years' duration almost unscathed, and furnish their owners a good profit at the same time; while, contrariwise, all black and hybrid bees in the vicinity suffer heavy losses, and frequently total annihilation, we begin to realize somewhat the important position held by these bees. There are numerous remedies and treatments recommended for the relief and cure of this malady; but where is there one that will compare with Italianization as a preventive measure before the colony has been exposed, or after treatment, to prevent reinfection?

I consider this item, Italianization, of more importance than any other one, and, perhaps, than all others combined, in the fight against this arch enemy of beekeepers.

In view of the foregoing facts, it is a pity we have no legislation making Italianization of all bees, where necessary for protection, compulsory. However, I presume such a law would be considered unconstitutional.

This statement, coming from an expert on European foul brood, is in harmony with the statement made by several other authorities. A word to the wise will be sufficient.

This bulletin can probably be obtained by New York beekeepers by applying to the Department of Agriculture, Albany, N. Y. Every York Stater should have it. It would probably cost residents of other States 10 or 25 cents, and it would be well worth the latter figure.

Bulletin No. 9, Beekeeping in Tennessee, from the State Board of Entomology, by G. M. Bentley, is another bulletin as large or larger, so far as the amount of matter is concerned. Numerous illustrations, most of them original, show the different stages in the various manipulations in the handling of bees. It is, in fact, a very complete treatise on the subject of handling bee diseases.

It gives a list of honey sources in that State, the present and future possibilities within the State, and then it takes up the subject of apiary inspection, and the report of the Apicultural Inspector, Dr. J. F. Ward. The closing pages are devoted to the relation of beekeeping to horticulture, by Dr. Ward. This bulletin can doubtless be obtained by Tennessee beekeepers by applying to the Tennessee State Board of Entomology, Knoxville, Tenn.

Bulletin No. 11 is devoted to the subject of beekeeping in Iowa, by Mr. Frank C.

Pellett, foul-brood Inspector of that State. This, though not nearly as large as the two other bulletins mentioned, is very complete, in that a beginner by following its instructions could make a nice start in the business. The subject of bee diseases, with a copy of the law, is given on the last page or two. A copy of this bulletin can doubtless be obtained by applying to the Iowa State College of Agriculture, located at Ames, Iowa.

In this connection it is proper to state that this college is one of the very best in the United States. It has a splendid equipment of new buildings; and we have been assured that its president is desirous of having beekeeping taught in the institution. Mr. Pellett is doing much for the cause of beekeeping in his State. While he is handicapped by a lack of funds to carry on properly the work of inspection, yet there is every reason to believe that the time will soon come when Iowa will take its rank with other States that recognize the seriousness of foul brood.

OUR QUEEN-MATING YARD AT THE BASSWOOD GROVE; BABY NUCLEI VS. THOSE USING FULL-SIZED LANGSTROTH FRAMES.

THE cover design for this issue shows a portion of our basswood grove that was set out by A. I. Root over forty years ago, or just about the time his enthusiasm for bees was at its height. He had secured a crop of basswood honey from his 50 colonies that set him wild. Observing that a single basswood tree would yield more nectar per square foot of ground than any other tree or plant north of the Ohio River, he conceived the idea of buying a piece of land and setting it out to basswoods. He purchased twelve acres, and during the next year he set out some 4000 basswoods. Many of them were not more than a foot high, while others were perhaps two or three feet. Well does the writer remember helping to set out those trees. A big Dutchman dug the holes, while we sprinkled in bonedust. We gave the young trees the right kind of plant-food at the very start. The trees grew, and along with them some side shoots. Neighbor H. told A. I. R. to let those shoots grow, as they would furnish more blossoms; but that was a mistake, because they ultimately killed the old tree, and left a lot of small trees all from one root, as will be seen in the picture on the cover. The ground was never thoroughly underdrained, and the trees have never, except in one or two cases, yielded a large crop of honey. One of these cases was during the year 1912.

Young basswood trees, in order to do well, should be grown in connection with

other forest trees; that is to say, the trees should be shaded by larger ones until they get their growth.

Another thing we observed was that nearly every year the outside row of trees would be in bloom while the inner ones showed no blossoms. This would indicate that perhaps the sunlight does not get in to the inner trees as it should. But since draining-ditches have been put in, and the underbrush cut out, basswood honey has been much more in evidence than it was formerly.

Another glance at the cover picture shows long rows of baby hives under the trees. These are our twin mating nuclei, some 200 in all, or 400 separate nuclei. In addition, further down the long rows there are some full-sized Langstroth nuclei in eight-frame hives, two to a hive. This brings the total number up to 450 nuclei for the mating queens at this one yard. In the background, not shown, are some 60 colonies for cell-building and honey-production, an artesian well, two small buildings for a workshop and the storage of supplies.

This whole layout, under the charge of Mr. Mel Pritchard and his son, is devoted entirely to the rearing of queen-bees. When he has a favorable honey year he will produce surplus honey as he did last year and this. In an average year the honey is converted into bees, which in turn are devoted to cell-building and the filling of orders for pound packages and nuclei. This yard will turn out this season about 3000 queens, and, besides that, 5000 lbs. of extracted honey in addition to about 2000 lbs. left in the hives for winter. This year the flow was so strong that even the baby hives were jammed with honey—so much so that the queens were “honey-bound,” and some combs had to be removed, substituting the empty ones.

We have used the twin nuclei at these yards for a number of years. At the beginning of the season we dip up about a dipperful of bees, say a quarter of a pound, and put it into one of the compartments of a twin hive. Another dipperful is put in the other side, making the twin completely peopled except the queen. After all the hives are filled cells or virgins are given, and at the proper age the young mother-to-be takes her flight. As soon as she begins to lay, she is taken out and another cell or virgin is put in her place. When there is a great surplus of virgins we sometimes “prestage,” as already explained in these columns—that is to say, there will be one queen caged while the other is loose waiting to take her flight. As soon as she begins laying, the caged queen is released because she is already introduced. This plan of caging enables us to increase the output

during the mating time in one hive, and at the same time makes it possible to take care of the surplus of virgins. At the close of the season, any bees that are left in the nuclei are dumped into one large box and made up into colonies. While these aggregations of bees do not make as good a colony as the regular, they are worth saving.

The covers of the baby hives are painted red, white, and blue, in order that the queens may more readily locate their entrances on returning from their wedding-flights. To assist further, the entrances point in different directions. For example, the first baby hive may have entrances pointing east and west; the next one north and south, and so on, because the entrances of each hive are in opposite directions. Well, the combined effect of red, white, and blue hives in straight rows, the green grass beneath, and the foliage of the basswoods, with every now and then glimpses of the blue sky above, makes a general combination that is inviting. Visitors always remark about it. It can be plainly seen from the street cars as they whizz by. We take visitors to this yard because the bees are very easy to handle, requiring neither smoke nor veil. It is well known that a little bunch of bees is less inclined to be “obstreperous” than a large-sized nucleus or yet a strong and powerful colony. Mr. Pritchard, however, uses smoke as a matter of convenience to facilitate his work. He never finds it necessary to use a veil. If the entrances are contracted, there will be little or no trouble from robbing. But it is an advantage to have the big colonies away from the little ones, and you will find them in the extreme background out of sight.

The question may arise, “Which is the better—the twin baby hives or the full-sized Langstroth?” That depends. For general purposes the large hives are better. They take a little more time, however, to manipulate, and from four to five times as many bees. Moreover, these big nuclei are very handy for filling orders for one-pound packages and nuclei for shipment.

Our Mr. Wardell sees no particular advantage in baby hives. They cost considerable to start in the spring, because they must be *started every season*. In early spring 200 nuclei will take 100 to 150 lbs. of bees. These, taken from strong colonies in the spring, so sap their strength that they are not worth much for honey. Two or three pounds of bees taken out of a colony makes it necessary to remove the brood and replace it in other hives that may not be able to take care of it to advantage, for the simple reason that they already have all the brood they can take care of.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

"EXTRACTED honey will be much more wholesome to use than sugar." That's what T. B. Terry says in *The Practical Farmer* when speaking of sweetening oatmeal. Terry has been slow to recognize the value of honey, but is not likely to take any backward step. That pronouncement of his will do a lot of good.

A KANSAS reader says he has more trouble introducing ripe queen-cells than queens, and asks the best way to introduce them. The trouble comes almost surely from introducing cells too soon after removing the queen, before the bees are yet conscious of needing either queen or cell. Wait a day after removing the queen, then introduce any way you like. You may make a safe thing of introduction at the time the queen is removed by using a West cell-protector. Or you can introduce it in a cage the same as a queen. This last has the advantage that the bees are slow about tearing down the cell, so you can see whether the queen has hatched or not. When not protected, the bees are likely to remove all traces of the cell, so you can't tell whether the queen hatched or the bees destroyed cell and all.

"If a colony, slightly affected with foul brood, should cast a swarm, would the swarm, if placed on new frames and new hive, be liable to the disease if not exposed afterward?"—D. W. H. I don't know. My guess would be that it would be safe 99 times in 100 with European foul brood, and not quite so safe with American foul brood. [The base of the cure for foul brood, both European and American, is putting the bees in a clean hive. A swarm makes use of this principle in that it leaves behind it its combs, and usually enters clean new quarters. Again, it is generally understood that swarms do not carry foul brood. Putting these two facts together it would seem that Dr. Miller's statement could be made a good deal stronger. While there would not be much danger of European foul brood following, there would be no danger of the American type showing up.—Ed.]

I DON'T believe alfalfa-growers can be persuaded to delay cutting till after alfalfa is in bloom, and I don't believe they ought. Much alfalfa is now grown here, and we're well up in alfalfa lore. The old rule was to cut when one-tenth was in bloom. Now the more intelligent rule is to cut as soon as the new growth starts at the base of the stalk. If cut later the new growth will be up in the way of the sickle, and the next crop

injured, and at this time not many blossoms are out. But alfalfa is no good for bees here anyhow. [Has it been proven beyond doubt that there is any advantage in cutting alfalfa before it comes into bloom? Many ranchmen apparently believe that the early cutting furnishes better hay. Perhaps so; but does it furnish a greater quantity of nutriment to stock? In other words, will an early-cut hay that has not reached its full growth and development yield more beef and pork than alfalfa cut after it comes into bloom? If we mistake not, there is a disagreement among authorities, with the odds rather in favor of the early cutting. But the pendulum has been swinging the other way, toward a later cutting. We hope so, as this will mean more honey, and probably more hay. See what Mr. Higgins says in the Heads of Grain department, in this issue.—Ed.]

A BIG jump has been made in parcel post by the postmaster-general by making the rate within 150 miles a cent a pound plus 4 cents, with an increase in weight-limit from 11 to 20 pounds. Then the c. o. d. feature is a good thing. But the insurance is not what it ought to be if we are to ship honey by parcel post, and I don't see why honey shouldn't be thus shipped in this country as well as across the ocean. May be not yet, but after a while. Well, you can insure a package; and if it is lost you can recover value. But if you ship a case of honey and insure it, and it's smashed in transit, and the dauby remains are delivered, not a cent of loss can be recovered, because the thing was not a total loss. [At present we do not think it would be advisable to ship either comb or extracted honey by parcel post. See experience of Mr. Moody elsewhere. So far the results have shown that any fragile article is likely to receive pretty rough treatment in the parcel-post mail-bags. Unfortunately, almost every thing is being sent in this way, whether fragile or not. A heavy package will be bumped against a light and fragile one, with the result that the latter will be smashed into smithereens, if, indeed, it ever reaches the consignee. We see no reason why comb and extracted honey should not share a similar fate, damaging every thing else in the mail-bag. Parcel post has been a great boon to the people of the country. If we give Uncle Sam, or, rather, the Postmaster-General, a little more time he will probably be able to eliminate some of these break-ages.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Mr. Chadwick makes a good point when he says, "The time is coming in this land of ours when more men must be producers, and fewer live on the work of those who do produce."

* * *

We hear occasionally of a bee-sting that struck a nerve or a vein, and consequently was very painful. Perhaps! But I have come to think that there is a great difference in the virulence of the poison of different bees. I sometimes receive a sting that seems almost inert, and the poison as harmless as so much water; and, again, I receive a sting causing unusual pain. The sting of a young bee seems much less severe than that from older ones.

* * *

I believe it was Louis Scholl who, some time ago, said that it is better for the specialist to have his yards of bees some distance apart. Then if there was a failure in one section he might get a crop in another. The present season in this section has seemed to verify the wisdom of such advice. Where some of our yards were located, and where we usually get fair crops, we shall not secure enough honey to winter the bees, while another yard, twelve or fifteen miles distant, where the drouth was not so severe, will give a good yield.

* * *

"There is that scattereth, and yet increaseth even more; and there is that withholdeth more than is meet, but it tendeth only to want." This is as true to-day as when first written some three thousand years ago. Especially is it true of beekeepers. How many have we seen that made a careful investment in bees, improved hives, sections, smoker, and beekeeping literature, that have reaped ten—yes, thirty, sixty, and even a hundred per cent on their investment, while others who thought they could not afford good hives, a smoker, nor a bee journal, have found it tended only to want and poverty!

* * *

It is nearly seventy years since I stood beside the gentle "schoolmarm" to learn my letters, and I repeated them one after another as she pointed them out with her wonderful pencil or more wonderful penknife, little thinking that some day I would be teaching the alphabet of beekeeping. And as I hold up a comb and point out the eggs and young and sealed larvæ, the work-

er and drone brood, and show the difference between healthy and sick or dead brood, and hear the exclamations of surprise from those who have kept bees for many years, I am astonished at their ignorance. An inspector must teach as well as inspect if he would have his work endure.

* * *

Mr. Jay W. Gee has an enlightening article on p. 375, June 1, on the shipping of fragile articles, and he speaks from experience in actually handling them. The fact to the care with which they are packed is to the care with which they are packed was a new idea, and yet it seems reasonable it should be so. That a few sections placed in a case of corrugated paper, and fitted nicely into a basket with handle, should go safely, is not at all surprising. I am of the opinion that, if all our shipping cases of honey had a handle they would go far more safely than at present. Mr. C. B. Palmer, on p. 450, July 1, calls attention to the use of a candy-pail for shipping honey. He attributes his success to the fact that the pail is not set down flat with a slam, but strikes first on one edge and goes down gently; but I believe the handle has more to do with it than he thinks. I fear if the handle were removed the pail would not prove of so great value as a shipping case for honey.

* * *

How far will bees go in search of nectar? and how many bees can be kept in one place without overstocking? are questions that have never been answered positively, and I believe never will be, for it all depends on circumstances. Mr. Harbison, of Southern California, told me many years ago that he found his bees working on flowers fifteen miles from home, although not very freely. The past spring it seemed doubtful if bees would go more than half a mile from their hives. The weather was so cool and cloudy about here that, where many colonies were kept in one location, they had to be fed to prevent starvation. A few colonies in a place during dandelion bloom would fill their hives, and some of them would prepare to swarm, while colonies in large yards could gather but little, as they could not go far from their hives, and the nectar was soon exhausted. On the other hand, during clover bloom there seems to be but little difference between large and small yards, as the weather is then mild, and bees can fly much further.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

On a recent trip to the San Bernardino Mountains I made a special effort to gain some knowledge of bee life in that region, and hope to submit an article a little later on my observations, illustrated with some pictures made by my own camera.

* * *

I have just made my first experiment in feeding thin syrup to prevent robbing while working with the bees, and I am not altogether satisfied with the result. It did not check robbing altogether, and I had one colony nearly cleaned out while my work was in progress. Later I tried wheeling the hives into the honey-house while at work with them, and then replacing them on the old stand. This plan proved very satisfactory.

* * *

The theory that alfalfa, in those parts of the State in range of the ocean winds, does not produce honey, is thoroughly exploded so far as my mind is concerned, owing to personal observation. A few weeks ago I was passing within half a mile of a field that was blooming nicely. I left my rig and walked over. I not only found bees, but great quantities of them, with every indication that they were getting honey at a very fair rate.

* * *

The most distressing feature of the season to me is the fact that my hives are now several pounds lighter in stores than they were two months ago, which means that colonies with a fair supply of stores then will have to be fed liberally by spring, and the weaker ones watched carefully to get them through. The stronger and better-supplied colonies will be able to pull through without much help. We can not afford to lose even the weaker ones, for it very often happens that we get some of our best honey-flows following these extremely dry seasons. Those are the seasons when the weak colonies soon come to the front and make big returns.

* * *

The skunks are again making inroads on my supply of bees that is already too low. I have never seen them quite so bad as at the present time, and the bees are so cross from their continual annoyance that the mere brushing past the hives brings out a stream of them to attack the intruder. The crosser colonies seem to fare the worst, due, very likely, to the fact that they are more easily brought out for an attack than

those of a more mild temper, and of course that is just what the skunks are after—the more that come out, the quicker they can finish their meal. I am again using strychnine to destroy them, but the process is slow, as there seems to be no end to the number that are harbored in the rocks near by. I have never been able to figure out why they are so much worse at this time of the year than at any other time.

* * *

The fight that has been waged against our old friend in the bee business, whom we know familiarly as Prof. Cook, now State Horticultural Commissioner, culminated last week in a hearing of the various charges before Gov. Johnson; and, if we are to believe the press reports, the charges fell flat for want of proof to sustain them. One thing that impressed me more than any other in the defense of Prof. Cook was that the records of his office were used in his defense, which seems to me to be about the best defense a man could have if his office has been properly conducted, as must have been the case here or they never would have been used for defense. It will be remembered that the fight on Cook started when he discharged the chief deputy quarantine inspector, and was *augmented* by the discharge of another of the official family some time later. The continual howl by certain fruit-men and fruit-papers brought about the hearing before our Governor. I have had very little sympathy for it all, because it was sprung before Cook had had sufficient time to prove himself efficient or otherwise. One fruit-journal wrote me taking exceptions to my defense of Cook when the fight was first begun; but now that he has been exonerated, and even those who led the case against him have admitted that they made a poor showing, my first opinion of the matter is confirmed. One thing is quite sure—the fruit-men will from now on know that A. J. Cook is the State Horticultural Commissioner and is square in the saddle. It seems to me that it is “up to” the fruit-men to get in and help now, and drop the policy of obstruction, for it must be remembered that some of the best fruit-men of the State were defending Mr. Cook. Governor Johnson said in effect regarding the dismissal of men from the commissioner's office, that it was no care of his who Cook discharged—that it was the efficiency of the work of the commission that most concerned him.

Beekkeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

LOCATING THE HIVES IN AN APIARY.

Hundreds of pictures of apiaries have been presented in the bee-journals and other publications from time to time. The writer has always found a certain amount of interest in studying them, there being quite a difference in the make-up of apiaries of various owners. In other respects they resemble each other very much—for example, in the placing of the hives. Has it not occurred to the readers that the great majority of apiaries are arranged with the hives placed either in rows or sometimes in squares, but with every hive a certain distance from its next neighbor? Are not the most of the hives placed so that every hive looks very much like the next hive or any other hive in the entire apiary? In many instances this "monotony" is broken only by the unfortunate(?) presence of such obstacles as shrubbery, trees, buildings, etc.

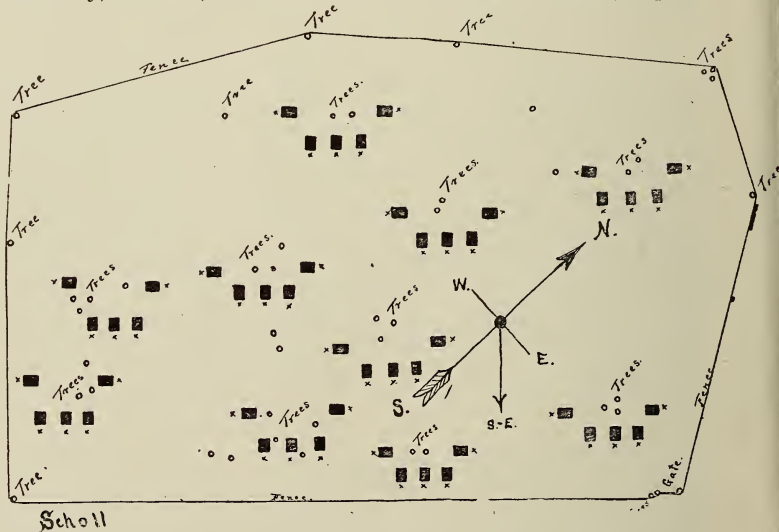
Such arrangements have their objections. The worst of these is in the matter of queens entering the wrong hives and being destroyed by the strange colony entered. This is the common cause of many colonies becoming queenless, especially after honey harvest. The apiarist can not account for this, as there seems to be no special reason why so many of his colonies should be found with missing queens. The trouble may, however, be attributed to the fact that many queens are superseded after the honey harvest; and the queens going out to mate return to the wrong hive because there is too great a similarity between the different hives adjoining their own. This is also true during the swarming season—in fact, at all times of the year when queens are likely to come out to mate.

Another disadvantage is that such an arrangement requires a lot of room unless the hives are placed close together. The closer together, the worse the trouble, however. The better way is to place the hives in pairs. Even groups of threes are better. A queen coming out of any hive in such a group will

take notice of the way her own hive is located in relation to the next hives, either to one side or the other, as the case may be; and when they return they will be less likely to go into the wrong hive.

To remedy the faults of an apiary arranged either in straight rows, exact squares, or on the hexagonal system, the colonies should be so shifted about until the entire yard is arranged in groups of two or three hives. Long rows of hives can easily be treated by simply moving every other two hives closer together, when space permits of this being done. If they are too close together already, the best step to take is to remove one hive from between every two hives in the row. That will leave the remaining hives in pairs, while the removed hives can be arranged in new rows.

The drawing shows an out-apiary fenced off, the wires stretched from tree to tree as indicated. There is room to place ten groups of five hives under a like number of trees or clumps of trees in the enclosure. The hives are located so that the greater number of them face southeast. By close observation it will be found that three hives facing this way are placed in a row "in front" of the trees. Another hive, facing northeast, is placed slightly in the rear to the right, while a fifth hive, facing southwest, is plac-



ed in a like position just opposite. Enough space is left between the backs of the hives and the trees to enable free passage and sufficient room for working over them.

[Half-tone engravings illustrating this plan will appear in the next issue.—Ed.]

Conversations with Doolittle

At Borodino, New York.

HONEY—HOW MADE.

"How do bees make honey? Is the nectar in the flowers honey? We know that the bees gather the nectar, but is that all there is to it? An old beekeeper told me that bees make honey. I denied it by telling him that bees gather honey."

Honey is produced by bees from nectar, and nectar is only a secretion of certain floral organs of plants. Bees will not gather any thing else if they can get nectar in paying quantities (unless their sense is perverted by robbing) as nectar is their natural food. This shows how they appreciate flavor. I know bees will gather such substances as fruit juice, sap from maple trees, or other plant wounds, aphid discharges, sugar syrup, etc., but such as these can hardly come under the term real honey. Possibly, if there is such a thing as honeydew this might be entitled to the name of honey after being stored and capped over by the bees; but, if I am correct, this, as well as such substances as those named above, lack in flavor, and could hardly be classed as good floral honey. Little honey would be eaten if it were not for its flavor, for the same amount of nutriment could be more cheaply secured by buying sugar and making it into a syrup of the consistency of honey. Flavor carries an important item in the economy of nature; and so important do we consider it that we add it to our food as we desire. Does not the flavor of ice-cream give it the delightful taste which causes us to be so eager for it? The flavor stimulates the appetite, and very likely aids in digestion. Of what worth would we consider the multitude of good things which we now enjoy when eating if all of them were deprived of flavor? Honey gets its value and character largely from its flavor, and its flavor is mainly derived from principles contained in the nectar. Each kind takes its distinctive flavor from flowers, each kind of flower having its distinctive source. I have been told that the honey takes its flavor from the secretions of the bees; but if this were true, what becomes of the wide difference in flavor of honey from the nectar of different trees and plants? Wonderful indeed would be the power of the bees if they could give such difference as is seen between the mild basswood honey and the rank buckwheat.

Honey is a rich, nutritious food. Its nutriment comes from the sugar it contains. Properly speaking bees do not gather *honey* and store it in their combs, but they gather the *nectar* of flowers, and through manipu-

lation and evaporation change it to honey. Honey is the prepared food for the colony, stored away for their future use. They not only manipulate the nectar, doubtless adding some of their secretions to it, but they generate more or less of the heat necessary for the changing of the nectar into honey. Bees possess a wonderful faculty for generating heat. When needed, they can bring the temperature inside the cluster from 80 to 95 degrees F. when it is down to zero in the open air. Of course, nothing of this kind occurs at times of nectar-gathering; but when nearly or quite a freezing temperature occurs during a night after a good flow of nectar from fruit-bloom, no lowering of the temperature inside will be noticed unless this freezing temperature is long continued. When the nectar is first gathered by the bees it usually contains an excess of moisture that has to be removed before it can become honey. The heat within the hive and cluster causes the moisture to evaporate, and the warm air of the hive to absorb it. To drive this moisture-laden air out of the hive the bees rapidly vibrate their wings. New air rushes in to supply its place. This goes through the same course of being warmed, circulated, moisture-laden, and finally driven out at the entrance. Many times have I seen water running in front on the alighting-board on a cool morning after a good flow of nectar.

Then all nectar is manipulated by the bees taking it in its raw state into the honey-sac and forcing it out into the mouth parts, drawing it back into the sac again; then forcing it out again, and so on until it becomes honey of sufficient density for capping over. By this operation, besides the evaporation of moisture, sufficient secretions of the bees are added and mixed with the nectar to make it honey when properly thickened. These secretions are probably needed to hinder fermentation and decomposition of the nectar. They also give a change in flavor, so that the honey does not have the same flavor as the perfume from the flowers from which it is gathered, nor the smell of the raw nectar when first brought in. Take buckwheat for instance. The aroma from a field when in full bloom, as it is wafted to our nostrils by a gentle breeze, is very inviting and lovely. But at nightfall, after a day of heavy gathering in a large apiary, no carriage could be more offensive to one who knows not the source from which it came. But after the bees have changed this raw nectar into thoroughly ripened honey this bad smell is all gone.

General Correspondence

ECONOMY IN RAISING QUEENS

Saving all the Brood from the Old Queen while the New One is being Reared

BY WILLIAM LOSSING

If there is a honey-flow in the locality, any beekeeper can secure a "bouncer" by complying with a few simple rules for raising queens, taking into consideration quality of queens and the least expenditure for time. My plan is applicable to home yards as well as to out yards, and I have demonstrated its practicability beyond a doubt.

First divide a two-story hive, using an extra bottom-board for the purpose. Select all the sealed brood, adhering bees and queen, place them in the upper story, leaving the eggs and larvæ in the lower story. There will now be perhaps four frames of brood in each story. Many workers will return to the old entrance, while enough will remain with the old queen to keep the brood from chilling, especially with the assistance of the heat from the lower story. As fast as the brood hatches, the queen will quickly deposit eggs in the vacant cells, and by so doing nearly the full benefit of the old queen is retained. At the same time the eggs and larvæ are being cared for by the bees in the lower story which are also building queen-cells.

We will suppose that we are at an out-yard fifteen miles from home, where honey is coming in, drones flying, and preparations are being made for swarming. We will go through the whole yard as above outlined, taking three days, say, for one hundred colonies. All yearling queens are in the upper stories, and nearly all the fresh brood and eggs are in the lower story. (Date each day's work.) In eight or ten days we remove all queen-cells but one, that being the best one in each hive. Perhaps ten per cent of the colonies are poor cell-builders, and in that case we destroy all of them and insert a good cell from another colony. The work is now done for the next fifteen days.

On returning, use very little smoke at the entrance of both upper and lower stories; remove the upper story; raise the quilt from the lower story; and if a young queen is laying the bees will be seen in a whirling motion directly over where she happens to be at that particular time. This sign is visible for only an instant, and practiced eyes will locate the queen immediately.

About five per cent of the young queens are lost in mating. When this occurs, on

lifting the quilt the bees often commence to hum very loudly, indicating that their queen is lost. (This sign fails occasionally.) If the bees are queenless, draw off two combs of fresh brood and bees (not the queen) from the upper story, changing combs with the lower story. After going through the whole yard we will say that there are six queens lost. In each of the six colonies two combs of fresh brood and eggs have been supplied.

Return to this yard in ten days, start at number one, and go straight through the whole yard, exchanging two combs of the ripest brood that each old queen has for two empty combs from the lower story minus the bees from each. After reducing the old queen again, ten days after this the colony with the young queen below will be strong enough for supers. When this time comes, do not delay, but put a super on and put the upper story that contains the old queen on top of it.

Keep drawing the ripest brood from the colony containing the old queen on top from time to time till within twenty days of the honey-flow. Now pinch the old queen's head; cage the young queen, and unite the bees. In due time release the young queen. All the bees and eggs the old queen produced have been saved, and there is a prolific young queen in the hive that will not swarm on the slightest provocation as an old queen will, nor fail during a long honey-flow.

Phoenix, Ariz.

[This plan requires a locality where there is quite a long period of warm weather before the main honey-flow.—ED.]

ENGLISH SPARROWS AS ENEMIES OF BEES

BY A. J. WRIGHT.

In the list of enemies to bees are toads, snakes, dragonflies, bee-birds, skunks, moth-worms, and domestic fowls. An experience that I had two years ago convinced me that the list is clearly incomplete. At the time mentioned I had a large queen order on hand, and began early in the season to raise queens in order to fill it. I had good success in getting a nice lot of virgins hatched and in the nucleus boxes; but when they took their mating flight at least 75 per cent failed to return. Another lot of virgins met the same fate. I succeeded in filling orders, but failed to raise enough queens to requeen my own apiary, which I much de-

sired. I lost many dollars' worth of queens, and worker-bees by thousands.

Accidentally I discovered the cause. I was working in the apiary when my attention was called to a flock of English sparrows perched in single file on the ridge board of the barn and cornhouse, and in line with the flight of the bees. Some of the sparrows were in the air all of the time, and were busy snatching up the bees; and when the bees would come in loaded and drop down on the roof of the buildings the sparrows would hop down and gather them in. I did not count the birds, but should judge that there were from fifty to seventy-five in the flock. I earnestly urge every beekeeper to make war on these pests. They certainly nearly ruined my apiary, and are, without doubt, the worst enemy of the bees and beekeeper. There is no mistake about the matter.

I know of but very little that can be said in favor, and very much to be said against the bird. I might possibly overlook the fact that it is a destroyer of cherries, grapes, pears, peaches, and other fruits, and buds of trees, vines, garden seeds, the tender shoots of young peas and lettuce, together with wheat and other grains (a flock of fifty sparrows requires the equivalent of a quart of wheat daily, making the annual loss caused by these birds throughout the country very great), and the further fact that the English sparrow drives out our native birds, killing their young and destroying their nests, also defiling buildings, ornamental trees, shrubs, etc., with their excrement and bulky nests. I say I might possibly overlook the foregoing; but when these little tyrants attack queens and worker bees, and endanger the safety of an entire apiary, I think it time to call a halt.

To show the nature of this bird I will relate the following incident, of which I was an eye witness. Three years ago the barn swallows built about thirty mud nests under the eaves of the barn above referred to. They were not molested by the sparrows until the swallows had young nearly large enough to fly, when the sparrows attacked them in a body, pulling the helpless young from the nests and dropping them on the ground and roof of the chicken house below to die of cold and hunger. The sparrows took possession of the nests and kept out the swallows. The same tragedy was enacted the following season, and the swallows deserted the location. The same thing occurred with a nest of bluebirds in an old tree.

I recommend that beekeepers send for Government Bulletin entitled "English

Sparrows a Pest" (No. 493), which will be sent free on application to your Congressman or to the Department of Agriculture, Washington, D. C., telling how to destroy these pests; but please be careful not to destroy the little chipping sparrow, which somewhat resembles the English sparrow, but is smaller, and differs considerably in its markings, for it is a friend to the gardener and beekeeper. A pair of the "chippies" kept a patch of twenty-five cabbages in my garden entirely free from cabbage-worms during an entire season, and destroyed many moths in my apiary. Unlike the English sparrows, the little chipping sparrows never do any damage.

Bradford, N. Y.

A DENTIST'S METHOD OF PRODUCING HONEY

Beekeeping Compared with Poultry Raising

BY P. E. WAUGH, D. D. S.

I am a professional man keeping a few hives of bees for pleasure and profit; and, like many others, the amount of pleasure I derive is, in a large measure, in proportion to how well my bees do, season conditions considered. To be honest, my fondness for honey was the real incentive for beginning; and when a neighbor told me he got 20 lbs. per colony from box hives I decided to get one. However, at about this time I borrowed a copy of the *ABC of Bee Culture*, and found out more about beekeeping in an hour than my neighbor knew all together. One hundred sections per colony is common, and sixty my lowest average.

With a little experience I found I should need one or two colonies to experiment with—one to supply honey for my own family, and a few to furnish that tidy little sum of money each year that adds just that zest to the business that holds the interest year after year.

I have my own scheme for swarm prevention that works in most cases, and I certainly get the honey. Having two shallow bodies to each colony I reverse them as soon as the top one is full of brood and honey, and put the supers on top. The queen now occupies the upper body; and as soon as it is pretty full I reverse again. The super work is now started, for I use baits in the super; and if in looking over the hives I find queen-cells I take away the super (bees and all) and give to the nearest very strong colony not showing queen-cells, putting an empty super in its place containing baits and empty sections. Then I reverse and take away a super again if necessary. I give as many as three of these supers to some strong hives; and how the bees do work! I

have a space below frames open full width at both ends.

I introduce queens of different races; raise young queens; find by personal observation how old a queen is before she mates, and how soon after she begins to lay; keep old queens after the bees decide to supersede her and watch both queens laying on the same comb, etc.

The work is all pleasant, and not to be compared to keeping chickens. The supers are prepared indoors during leisure hours, for recreation. If a big cloud comes up, I don't have to telephone my wife to gather the live stock to keep it from standing under a weed and getting chilled or drowned. What a pleasant sight it is to see the bees come pouring into the hive when the sun becomes overcast and the first cool breeze of a spring storm stirs the leaves! Chickens are a nuisance in town, any way you look at it. I had them several years, and made them pay too. But they are dirty things, and require endless care and looking after.

No, sir! Give me bees. I believe I can demonstrate that I can produce enough honey from *one hive* for the average family's yearly use, using shallow extracting-frames in super with full sheets of foundation and a good colony of Italian bees.

Tola, Kan.

ANOTHER DENTIST WHO FINDS BEEKEEPING ON A SMALL SCALE A HEALTHY EXERCISE

BY DR. R. M'CULLOUGH

Of all the professions, that of the dentist is the most exhausting in that it has, in addition to all the other strenuous conditions peculiar to professions, the element of close confinement added, and that, too, for long hours. This feature is so fatal that reliable statistics show that the average life of the dentist is only about forty-five years, which indicates that the man who allows his work to master him—that is, who attends strictly to business, as we are so often admonished to do—is destined to early retirement. The logical conclusion, then, is that the dentist who wishes to survive must have some outdoor attraction; and I will most positively say that "bees are it."

When I say that, I mean that beekeeping is far beyond any other avocation I know of, and I think I have tried them all. I have been advised, times without number, to take long walks, morning, noon, or night; but without an incentive one is simply not going to do it. Now bees offer that incentive.

Some fine spring morning you see your

bees coming in with great loads of bright-yellow pollen. Where are they getting it? Before you realize it, off you go to find out; and after a good tramp you may find them working merrily on the pussy willows. Then by the time you have lost interest in the source of the yellow pollen, another color catches your eye, and you are off again to ferret out the new source of supply.

All the time this is going on, with what pleasure you note your bee family growing full and strong for the coming harvest, and all without the everlasting worry of feeding, watering, cleaning coops, etc., attendant on poultry-raising for instance.

By the time you have located the source of most of the pollen your attention is attracted by the heavy manner in which your bees are dropping down to the entrance, and the general appearance of hustle in evidence. Away you go, and, may be, after two or three morning tramps you discover the locust trees in bloom, and the air filled with their fragrance and the hum of bees; and you go on to your office with a smile on your face that lasts all day.

So it goes from spring to frost, always something new, giving your pets this little attention or that, until you arrive at the close of the year, and realize that you forgot all about taking that vacation which you have usually been compelled to take; and when you begin to analyze your condition you are compelled to admit that you never felt better in your life.

But suppose you did not forget about your vacation; well, go ahead and take it. See that the bees are not cramped for room in the mean time, and they will be there when you come back, probably all the better off for your absence, and you will not have bothered your neighbors to feed and water them while you were gone either.

I have been writing as one professional man talking to another, and I think I can not do better than to go on in that strain. All that I have been saying can probably be summed up in a few words by intimating that I have been getting the outdoor exercise of which I was so much in need, without the consciousness that I was just doing something for health's sake.

Poultry may give you something to interest you out in the back yard; but the back yard is the limit of your interest; and accompanied with it is the constant responsibility so that, when the first enthusiasm wears off, you begin to feel more tied down than ever, which in reality you are. The same might be said to a greater or less degree of almost every other avocation with the exception of bees.

With them your interest is extended to

the whole territory surrounding you; and through your curiosity to ascertain the source of pollen or nectar, or the cause of this or that activity, you find trees in blossom that you never dreamed had a blossom, or that what once you considered a noxious weed possesses flowers which, for intricacy of form, relegates the American beauty to the commonplace. What great variety of size and form of bloom, simple and compound, making it hard or easy for the bee to arrive at the coveted sweet within! and with what untiring perseverance the little fellow labors to acquire the precious load! And then the home of the bee itself! what everlasting interest and wonder are enclosed in the four walls of their little house! But why say more? All these things are better appreciated when seen than when read about; and the pleasure is all in finding out for one's self rather than told.

I do not know that I can do better than to tell something of how I myself became interested in bees. As I intimated earlier, I had gone pretty well the rounds in avocations—so much so that it got to be something of a speculation in the community as to what Dr. Mc. was going to raise next. One day when I went to our public library the librarian handed me a journal with the remark that it would likely interest me. It proved to be Christmas number of *GLEANNINGS* for 1908, and interest me it did. I have it yet, though much the worse for wear. That winter was spent reading every thing I could get my hands on relating to bees; and the following spring found me with a hive of bees on my back porch, having at that time no other place to put them, much against the wishes of Mrs. Mc., who protested that the children would be stung to death. I will admit that I had some concern in that regard myself; but we were happily surprised to find that the bees confined their attention to their own business and bothered no one, regardless of the fact that the children played on and about their hive, and rather roughly at times at that.

As a further inducement to the good wife to allow me to enter upon this new venture I proposed that the product of the hive should be hers. This arrangement has proven satisfactory in more ways than one—satisfactory to her, as it nets her from five to eight dollars a year pin money, and satisfactory to me in that any inquiry of me as to the purchase of honey is referred to her, relieving me of the mercenary side of the proposition.

This statement causes me to suggest to any who might think of keeping bees as an avocation to keep only a few bees, say not more than three colonies, so that your

pleasure in them will not be converted into a burden, and also so that the idea of profit in dollars and cents from them does not overshadow the profit from healthful exercise, and freedom from anxiety in regard to them. You keep bees for your health; let the fellow who keeps them for a livelihood do the worrying as to the mercenary side of them. Stick to your own business for your living, and to your bees for recreation.

Pittsburg, Pa.

HONEY AND BEES AT THE HAMILTON COUNTY FAIR

BY HENRY REDDERT

The agricultural fair just ended was a great success in all its details. The efforts of the fair committee were duly appreciated by the great crowds of visitors during the four days of attendance.

There were two entries of bees and their products, and one entry of beekeepers' supplies by Mr. Charles H. Weber. Mr. J. G. Creighton, of Harrison, Ohio, secured first prize on the best display of comb and extracted honey; first prize on wax and comb honey, and live bees in observatory hives. Mr. Lenert, of Elwood Place, took the first prize on extracted and second on comb honey and beeswax. Mr. Creighton's honey was all in crystal-white jars of various forms and sizes, from a gallon down to a pint. Mr. Lenert's honey was in green jars—a practice all exhibitors of extracted honey should avoid, as it gives a different hue to the honey. The honey he received first prize on was in a small crystal-white pint jar. Had he used white jars for the entire display it would have shown up very much better.

The exhibitor should use various forms of jars, and set them in such a way as to make a harmonious picture to draw the attention of the visitors. Mr. Creighton's wax was not as light-colored as Mr. Lenert's. It was chocolate-colored and put up in twenty and five pound pieces, and so formed as to resemble a decorated chocolate cake. Had he not marked it, nine out of ten people would have taken it for such. I was puzzled myself until Mr. Creighton explained. I presume the bulk and shape secured him the first prize on wax.

We have quite a number of large beekeepers in our county who have the time to make a good display if they would only make up their minds to do so. To my mind it is a great advertisement to beemen who sell honey in large quantities, retail and wholesale. Then, again, it helps to enlight-

en the public as to the good uses of honey. I saw no department where people were so deeply interested as in our small honey-gatherers. The time I was present (and he told me it was the same the entire four days), Mr. Creighton was constantly busy explaining the various operations of the hive. He showed them the queens depositing eggs the same as if in their own yards. This aroused considerable interest.

Cincinnati, Ohio.

FRANK RAUCHFUSS

BY WESLEY FOSTER

The Germans are the greatest beekeepers in the world. The largest beekeepers' associations are in Germany. Furthermore, many of our American beekeepers are descended from German stock. For instance, my grandmother Schnee never learned to read English; but her German Bible was her comfort. My father was half German, and so my instinct for beekeeping and the taste for honey was early manifested.

The four best apiaries in Colorado, in point of care and tastefulness of arrangement are owned by three Germans and one Swede, and the Swede learned his beekeeping from a German neighbor. Mr. Frank Rauchfuss is one of the Germans. There is no beekeeper in the West, or in Colorado in particular, but that knows Frank Rauchfuss personally or by reputation. Coming to this country when but a lad, he clerked and kept books, and managed departments in mercantile establishments in New York, Louisville, and Denver. While in these lines of work he became familiar with American business conditions. For several years he managed the bee-supply department for the L. A. Watkins Mds. Company, of Denver, and while there his career began as chief organizer of the Colorado Honey-producers' Association.

With his brother Herman the Rauchfuss foundation-fastener and section-press was brought out, and practically every specialist in Colorado has one. A simpler and more efficient machine has not been made.

In 1899 the Colorado Honey-producers' Association was organized, and Mr. Rauchfuss was made manager. A room was rented beside the L. A. Watkins Mds. Company's warehouse, and there the beemen hauled their honey and received their supplies on Saturday afternoons when Mr. Rauchfuss was off duty at his regular employment. The business soon grew so that it was necessary to keep the store open every day. Mr. Rauchfuss resigned his position with The L. A. Watkins Co., and

has been manager of the Honey-producers' Association ever since. He is a quiet, unassuming man, of definite ideas. Any one acquainted with him knows of his strong characteristics in this line. One of the book-keepers of the Association once told me that when a beekeeper who had been doing faulty grading came into the store she left the office because she could not stand it to hear Mr. Rauchfuss "go" for him.

Mr. Rauchfuss has hobbies the same as all of us. He has a spotless little place out in Aurora, a suburb of Denver, where he pursues gardening, poultry-raising, beekeeping, and the raising of goats. At the last account he had five goats, I think. If you never drank goat milk you don't know that the Jersey cow has a superior in the way of a cream-producer. Mr. Rauchfuss told of an amusing experience he had at the interstate fair in Denver. The judges tested the milk that he exhibited, and found it so much richer in butter fat than any other that they charged him with having mixed cream with it, which charge he denied with all the earnestness possible. Later, when he told them that it was goat milk, he had the laugh on them.

Mr. Rauchfuss works in his garden a good deal, and I have been told that a weed could not be found inside the fence. It is probably true, for I never saw any there. With the few lots for garden and fruit, the poultry, the bees, and the goats, the income is no doubt augmented several hundred dollars yearly. A better example of intensive gardening could hardly be found than the one I am describing. Mrs. Rauchfuss took the first prize at the interstate fair in Denver not long ago, and her honey-cooking recipes exhibited on the demonstration train delighted every one, which is only a proof of her excellent cooking. Mr. and Mrs. Rauchfuss have a little son, Walter, who can talk German, but thinks it more polite to talk English because the other boys do.

After having told you these rambling things about our friend, you will be interested in visiting him any day at the office of the Colorado Honey-producers' Association in Denver. You will find that he can tell many interesting things about western beemen and western conditions in general.

Boulder, Colo.

Slabs of Candy for Winter Stores

Last winter, in my own apiary there was no loss. I wintered out of doors in common dovetailed hives. I kept slabs of candy on top of frames, chaff cushion on that. My bees were stronger April 1 than they were Nov. 1, making honey on the first bloom at present.

Morrisville, Mo., May 1.

H. CLAY DAY.



Apiary of J. L. Strong, Clarinda, Iowa. The apiary house and south part of the yard are not shown. There are four rows of hives, twenty-five in a row. The small hives shown are twin mating hives.

THE BROOD-SURFACE IN DIFFERENT-SIZED HIVES

How Different Conditions have a Bearing on the Problem

BY ARTHUR C. MILLER

Brock uses ten-frame hives. Oppenheimer uses twelves, and Old Man Philetus uses eights; and each one is cocksure that he has the right size, and that the other two are wrong. Perhaps each is right. What do you think?

"Location," did you say? "Location be hanged! No, you needn't get huffy, but just listen and cool off.

Brock uses a standard ten-frame body in which the frames, after a little swelling and propolizing, fit so snugly that the outer surfaces of the outer combs are so close to the hive sides that they rarely have any brood put in them, and hence not much on the other surface. So he really has but little more than eight combs available for brood.

Oppenheimer's twelve combs fit about as do Brock's ten, so he loses nearly two, leaving him with but about ten for brood.

Old Man Philetus' hives are standard eights, with ample room for the frames which are kept away from the hive sides so that the outer surfaces of the outer combs are occupied with brood.

Didn't realize how nearly alike the different brood-nests were, eh? Well, they are nearer than that; and, what is more, Old

Man Philetus actually has more brood in his hives than either of the others.

We will do some measuring and counting, not because you like to fiddle with figures, but because they are good for your mental digestion.

A standard L. frame with inch-thick top-bar has an internal area of 134 square inches. Figuring 25 cells to the square inch, and doubling it for the two surfaces, such an area would have 6700 worker-cells; by count it is 6800. Those are the figures provided the combs are built on foundation and fill the frames. But how many combs approach that condition? Let us go to the different yards and see.

O. M. P.'s combs fill the frames solid from top-bar to bottom-bar, and from end to end, and all worker comb—that is, all but the lower half of one comb in each hive, and that is drone comb, and all the drone brood is there. Wise Old Man Philetus! His combs are beautifully filled with brood, even regular sheets of it, and only a narrow line of honey and pollen next the top-bar.

Deducting the half-comb of drone and the total area used for pollen and honey in the eight combs, we find that there are about 45,000 cells of worker brood. (Not nearly enough for a good queen and best results, as O. M. P. has learned, and he is changing to larger hives.)

Brock has good combs built on foundation in wired frames but the combs do not touch the bottom-bar, and are rounded off



Mr. Luke, of Jefferson Co., Ind., and a part of his bees.

on the lower edges or have a fringe of drone-cells and more of the same in the lower corners. By measure we find that an area equal to a frame and a half is thus wasted. In other words, he gives to drone comb about double the surface given by O. M. P., and loses the area of half a comb by unoccupied space. The amount of honey and pollen is much the same as in O. M. P.'s, except that the two outer combs are all or nearly all honey and pollen.

By measure and estimate we find Brock's ten combs when in use have available for worker brood the equivalent of but seven perfect combs of the O. M. P. capacity, or 47,600 cells.

Brock doesn't like the showing, but has to admit its truth. To make him feel better we will take him with us to Oppenheimer's.

O.'s "twelve-frames" look immense beside O. M. P.'s "eights," yet there does not seem to be much more hustle, except of drones. We open up some hives, and here is what we find. (Really it is a shame to expose O., but after all it is best for everybody concerned.) Some of O.'s combs are built from starters, some from full sheets, some wired and some not. The two outer combs contain only honey and pollen. The other combs contain many drone-cells, sometimes a strip along the lower edge two to three inches wide; also spots of them here and there over the surfaces. The brood

in these combs is not in solid sheets, as in Brock's or O. M. P.'s, except in the combs where wired frames of foundation chanced to have been used. Pollen and honey are found in patches here and there among the brood; and where the foundation has stretched, wide strips along the top-bars are filled with honey. By measure and estimate we find that O. has the equivalent of but seven combs of the O. M. P. type.

To be sure, his queens have more room to lay; but it is in drone-cells, and hence a loss to him. And Oppenheimer is mad, and insists that his combs are as good as the average run of combs. He is right, there; but the "average" is lower than what a hen lays an egg on daily.

By a little figuring, we shall find the available worker-cells in the three typical classes of combs to be as follows:

O. M. P.'s "Best," 6460.

Brock's "Good," 5950.

Oppenheimer's "Average," 4760.

But more brood is produced in the same worker-cell area of "Best" and "Good" combs than in the "Average," so the latter are even poorer than the figures indicate.

That is a long way around to reach the point; but the longest way around is the nearest way home, or is so reported by persons not really strictly sober.

One of the boys will say that his queens keep only an eight-frame hive properly full of brood, while his neighbor says it takes



A portion of the apiary of Mr. Chas. McCauly, Jefferson Co., Ind.

twelve combs to accommodate his queens. Possibly it is the queens; but it *may* be the combs. Better find out before you waste ink and paper and use up valuable space in the magazine, as I am doing.

Lest you should run out of food for thought, consider the following: It costs less to get "Best" combs than it does those of the "Good" grade; and when you take into account trouble and labor, combs which have to be cut out and replaced, excess of drone combs, uneven comb, etc., you will find that the "Average" grade is the most costly of the three.

These are cold hard facts. Use the cold part to relieve your aching head.

Providence, R. I.

BEEKEEPING IN JEFFERSON CO., IND.

Sweet Clover Preventing the Land from Washing

BY B. F. KINDIG

I am always glad when my work calls me to Jefferson County, Indiana. The hills and valleys covered with a mantle of honey-producing plants always fill me with admiration. This is the home of the locust

trees. In ordinary years, everywhere one looks there is a profusion of white bloom. Basswood, locusts, poplars, blackberry, raspberry, yellow and white sweet clovers, asters, and white clover seem to vie with each other in the abundance of their bloom. In most parts of the county the sweet clover, basswood, locust, and white clover are the chief sources of nectar.

This is about the only locality in the State where nearly every one keeps bees. However, there are few professional beekeepers. The chief beekeeper, Mr. Chas. McCauly, died the past winter, and with him has passed the chief of the professional beemen. It was Mr. McCauly who first brought in yellow sweet clover, and he was the first to demonstrate that Jefferson County has a honey-flow so dependable that one may make honey-production his only source of income. There are hundreds of beekeepers who keep from one to twenty colonies. Not many keep more than fifty, but a few keep a hundred or so.

Most of the county is very broken. The



Picturesque drive shaded by locust trees.

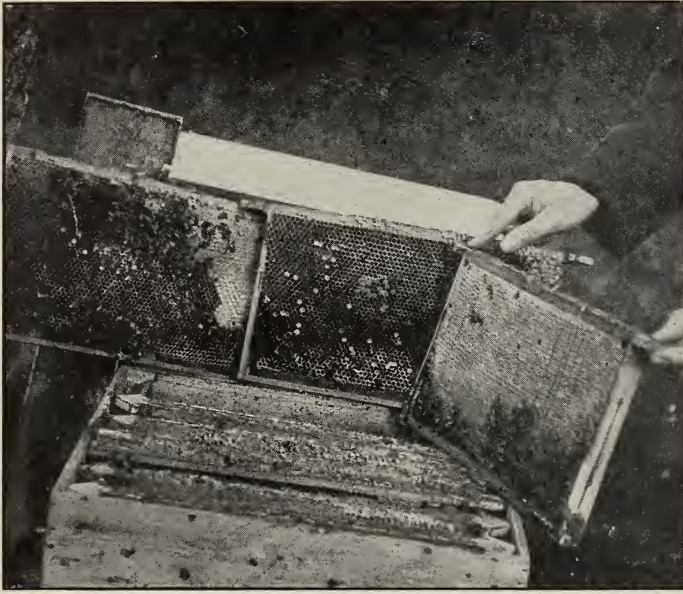


FIG. 1.—Combs of colony with Isle-of-Wight bee disease.

forests have been pretty well cut over. Where the land is not cultivated, the locusts have taken possession of considerable areas. The land that has been cultivated or pastured is mostly covered with sweet clover. And sweet clover has been the farmer's salvation here as in many other places. It stops the washing, or prevents it. It puts the necessary humus and nitrogen into the leached hillsides, and rejuvenates them. With the clearing of the forests the natural fertility began to decline, and the hillsides washed until there was almost no vegetation to cover their rocky sides. Then sweet clover came and put new life into them. Blue grass began to take root, and white clover followed; and now those slopes to which sweet clover first came are covered with a beautiful carpet of blue grass through which peep millions of white-clover blossoms. In addition, sweet clover, that "noxious weed" which has been fought with scythe and by legislation, has gained a well-deserved victory and now furnishes tons of nectar for Jefferson County beekeepers.

Although the land is of limestone formation, it is common to find some of the flat hilltops sour. But that is to be expected unless the region be rather arid, for the tendency toward sour soil increases with the increase in total annual rainfall. Usually only the flat hilltops and ridges and the fertile bottom lands are cultivated. The sweet clover on the hillsides is usually cut once, and then allowed to grow up and

bloom. This gives an excellent flow of later honey.

Very few colonies of bees have to be fed in the fall, for ordinarily the aster flow is sufficient to insure an abundance of winter stores.

Jefferson County has a smaller number of cases of foul brood per hundred colonies than any other county in the State that I have investigated. Both European and American are here, but are only rarely found. Some years ago foul brood was a common trouble; but after their sad experience the beemen are on the alert, and use

vigorous measures wherever a case develops. One item that probably contributes largely to the scarcity of foul brood is the large number of bee-hunters and the resulting small number of bee-trees. In some counties of this State, everywhere one goes the cry is, "Give us a law that will allow us to

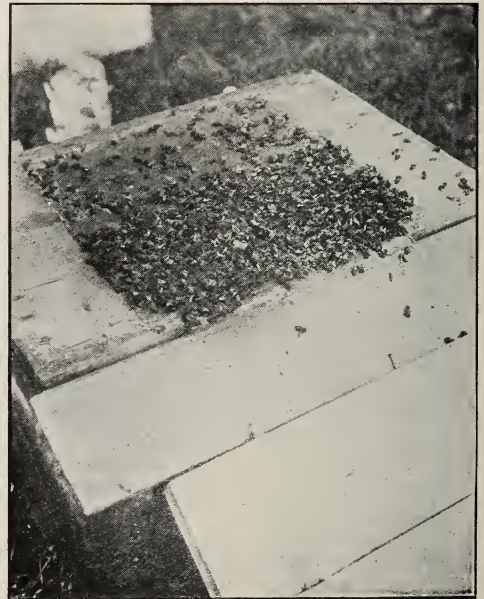


FIG. 2.—Condition of bottom-board under Isle-of-Wight disease colony.

enter upon a man's premises and cut the bee-trees so that we may destroy the sources of infection." Here the unwritten law is that, wherever a man finds a bee-tree, it is his to cut and rob. I feel sure that this custom is in a large part responsible for this small per cent of foul brood. But this is the locality par excellence for sac or pickled brood. I have found it in hundreds of hives, but it rarely proves very serious.

On May 23 many colonies were literally living from hand to mouth. Spraying when the fruit-bloom was open weakened many yards, and a number of colonies were reported to have been killed. There was very little locust bloom this year. A very dry period, followed by cold rainy days, prevented any considerable work on the white clover. Beekeepers in general were feeling very pessimistic in regard to this year's honey crop; but at this date, June 7, a bumper honey crop is in the making.

Indianapolis, Ind.

THE ISLE-OF-WIGHT BEE DISEASE

BY JOSEPH TINSELY

The beekeepers of these islands are considerably disturbed by the prevalence of the Isle-of-Wight disease; and although it is some time since it appeared in England, yet it shows no signs of abating. Formerly it was known more as a summer or early spring complaint; but in our own county we have had a rude shock in the way of winter mortality.

The symptoms in the summer are well known. I was called to a case last July. A beekeeper had a dozen excellent colonies. The bees were storing honey rapidly. When I went over, each colony had fully 60 lbs. in the honey-chambers; then, as if by magic, the Isle-of-Wight disease gripped them. The sight was most peculiar. Thousands of bees were crawling all around the hives, unable to unite their wings. Small pieces of grass and weeds around the apiary were seized upon by the insects to raise themselves higher, where they clustered in knots. The bees were swollen; and if one was pressed with the feet the excreta would spurt out as if the whole body of the bee contained nothing else. Sulphur and several advertised cures were tried, but all in vain, and the bees dwindled away rapidly.

Considerable conflict of opinion is being noticed in England at the present time as to the cures. Some have achieved success with certain remedies, while the same remedies in the hands of others have met with no success. The investigations made by the

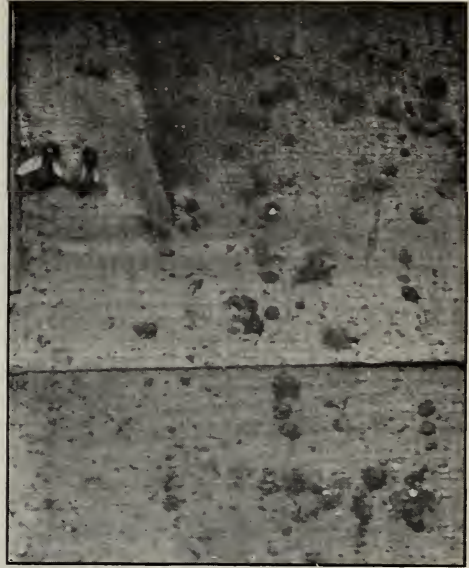


FIG. 3.—Bottom-board covered with the excreta of the diseased bees.

Board of Agriculture have also done very little toward the eradication of the disease; and in their official report they state definitely that there is no cure, and advise burning. Until last year we were not seriously visited in this county with the pest, although it was in adjacent counties. The losses in some places are enormous. I know of more than 500 colonies being lost in one county alone. Even the experimental apiary connected with the British Beekeepers' Association at Swanley was attacked by the pest.

The winter state of the disease is all the more alarming. The bees go into winter quarters in apparently good condition; but when one takes his early spring peep to see how things are going he finds a great many



FIG. 4.—The bee on the left is diseased. Notice the distended abdomen and the unnatural appearance of the wings. The bee on the right is healthy.



A 2½-year-old beekeeper.

dead bees. I was called by a beekeeper in February who had lost half of his colonies with the Isle-of-Wight disease. I took photos of the bees, which I enclose. In illustration No. 1 are three combs taken from the dead hive, showing the exact condition of the stock. On the right hand is a fine comb of honey, weighing approximately 6 lbs. There were three like this. In the center will be noticed a small patch of brood, showing that the queen did her work right up to the last; and it is a peculiar feature of the disease that the queen is the last to die. I found her very easily, and her body was quite fresh, giving one the impression that she had not been dead more than a day. The comb on the left consists of empty cells where many of the bees clustered only to die. The bees were badly swollen, and all over the interior of the hive, and on the combs, was noticeable the peculiar faeces emitted by the bees.

The second illustration shows the floor-board. Not a live bee left. The sight was appalling, and we walked away from the apiary wondering what would happen next. The beekeeper in question was one of the most up-to-date men we have. Every thing that could be done for the bees had been done. They had clean, dry, sheltered situation, and plenty of good food and winter covering. Foul brood is insignificant in comparison. I have seen 60 lbs. of honey produced from a colony suffering from foul

brood; but I doubt whether we shall see 6 lbs. from one suffering from Isle of Wight. This year up to the time of writing I have seen no less than 10 apiaries devastated as a result of the disease.

One point I have noticed very particularly and that is that I have not seen a colony of Italian bees with this malady. Of course I am only speaking now of what I have seen, but I have great faith in the Italians as disease resisters. On the other hand, we have a number of beekeepers in England whose bees are kept in any thing but a proper manner, and who pay no attention to the improvement of stock. Possibly a lowered vitality in the strains of bees in this country has been responsible for the pest finding a home. This, of course, is my theory only; but as I have studied the disease since its first appearance in this country, and am in communication daily with the best beekeepers in the British Isles, I hope to state some reliable facts shortly.

Stone, Staffs., Eng.

A "NEW" BEEKEEPER

BY FRANKLIN E. JAMES

After keeping bees for a year I would say that I have had more genuine pleasure and gained more knowledge than I could have believed possible; and, besides, they have more than paid for themselves, as I got a good crop of honey. There are many beekeepers around here; but most of them still use box hives, and have little acquaintance with their little workers. Some of them still sulphur the bees whenever they want to "take" the honey, and no amount of persuasion can make them change their methods. I am sending a photo of my youngest boy; and, although only 2½ years old when the picture was taken, he could handle the frames in a hive nicely. When I asked him to pose for his picture this is what he did, saying, "They won't hurt you."

New Bedford, Mass.

SNOWDROP AS A HONEY-PLANT IN IDAHO

BY F. F. GEORGE

I believe you need an up-to-date picture of a wonderful honey-yielder, snowdrop (buckbush). By looking a little close you will notice almost a mass of white berries. I am quite sure nurserymen once sold it by the above name; but I think I will submit to the name "buckbush."

This plant blooms here in June, before the white clover. I have a bottle of the honey

secured in June, 1910, that is not candied yet. It is very light amber now, but water-white when first extracted. The flavor is very pleasant, and it does not detract from the flavor of white clover. The plant grows everywhere here, from 6 in. to 4 ft. high. Pheasants and cattle eat the berries. The cattle also browse on the tender twigs in summer. It has been reported to me that the same bush bears red berries in northern Missouri. They are white here, and they have a mild, sweet, bitter taste.

Fraser, Ida.

AN OPEN FENCE FOR A WINDBREAK

BY GEORGE SHIBER

After carefully reading all that had appeared in the journals on the subject, I built a windbreak last fall in order to shelter my bees from the winter winds. I decided to have it 7 feet high; and knowing that it would have to withstand hard wind pressure I selected 4 x 4-inch posts imbedded three feet in the ground, with two cross-pieces of 2 x 6-inch stuff.

Then the question was, whether it should be tight or open; and if open, how much so? After considering the matter on both sides I decided to have it open—that is, the boards were 7 feet high, and separated two inches. I concluded that, if it should appear that the tight fence was better, it could be easily changed.

I was agreeably surprised to note the difference in a strong wind, the inside being comparatively calm. The air was just in motion. The entrances to the hives pointed away from the wind also.

Well, I concluded that the colonies ought to winter well. They were abundantly fed last fall; and now I am reminded of something Mr. Byer wrote Jan. 1, p. 10, to the effect that the paramount question in wintering by any method is that of having plenty of stores in the hives. From my experience I would most emphatically say that he need not guess again.

I used planer shavings for packing, placing a hive-bodyful above the frames, and that is all the packing they have. No paper or packing is around the sides of the hives at all.

Of course, up to date, Jan. 20, we have had a very mild winter, and we may have some severe weather yet, but so far every colony has wintered well—I might say perfectly.

I do not think my windbreak will have the disastrous effect mentioned by A. J. Halter, p. 55; for when there is a wind the cool air is in motion inside. The enclosure



Snowdrop, or buckbush—a honey-plant in Idaho.

is sufficient, I think, to keep them in the hives when too windy to fly safely.

The editor is, I think, entitled to credit for bringing up this point strongly. It seems, therefore, to me that a windbreak, of whatever kind it is, should be somewhat open; and yet subsequent experience may prove it to be wrong.

Inside the windbreak the snow is distributed evenly, not drifted at all.

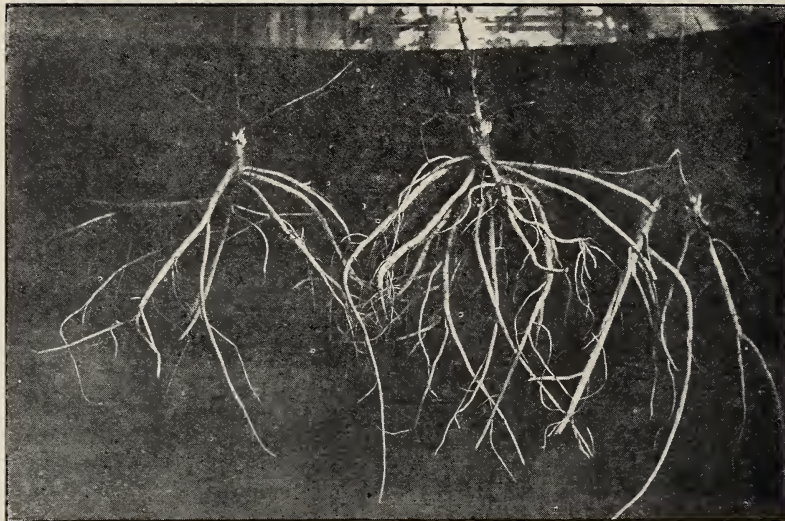
I do not like to have the snow drift around the hives, as it has a tendency to make the inside of them damp. I want perfect dryness to prevail in the hives.

Randolph, N. Y.

THE NEW TEXAS FOUL-BROOD LAW

BY WILMON NEWELL

The new Texas law relative to bee diseases, mention of which has heretofore been made in these columns, went into effect July 1, and is, perhaps one of the most comprehensive laws on the subject that have yet been enacted. Briefly stated, its main provisions are as follows:



Sweet-clover roots. Photograph sent by W. E. Kirk, Amarillo, Texas. The seed was sown six months before the roots were pulled. The center root weighed 4 ½ pounds. The root at the extreme right grew on sod land.

The law previously in effect is repealed, and the new law specifies that the Entomologist of the State Experiment Station shall be State Entomologist of the State, and have charge of the enforcement of the law. Under the former law the Professor of Entomology in the Agricultural and Mechanical College was State Entomologist. This change was made principally because such work as eradicating foul brood was deemed more appropriate for an Experiment Station than for an educational institution. This change in the law does not, for the present at least, make any change in the incumbent of the office of State Entomologist, as Mr. Wilmon Newell, the State Entomologist, is entomologist of the Station, as well as Professor of Entomology in the College.

Section 3 authorizes the State Entomologist to issue such regulations relative to quarantines, shipment of bees, etc., as may be necessary to a proper enforcement of the law, and any violation of these regulations is defined as a misdemeanor.

The provisions of Section 4 require that all bees, except those shipped in wire cages without combs or honey, when shipped into the State be accompanied by the certificate of the State Entomologist or Chief Foul-brood Inspector of the State from which they are shipped. However, in those cases where a certificate can not be obtained from the proper State official, or where there is no State inspection of apiaries, permission to make the shipment into Texas may be obtained from the Texas State Entomolo-

gist upon the presentation of suitable evidence showing the bees to be healthy. As noted above, these requirements do not apply to the shipment of bees in wire cages without combs or honey. On shipments of these there are no restrictions. The provisions relative to queen-bees are in exact accord with those of the Postoffice Department, i. e., queen-bees must be accompanied by a certificate or by copy of an affidavit showing that the honey used in making the candy contained in the cages has been suitably boiled.

The law authorizes the State Entomologist to make regulations relative to the interstate shipment of used hives, fixtures, etc., and makes it obligatory upon all common carriers to comply with such regulations.

Shipments of diseased bees found in the possession of any common carrier may be confiscated by the Entomologist or his inspectors, and, for purposes of inspecting bees that are in process of shipment, these officials are authorized to enter railway depots, cars, express offices, etc.

The new law is, perhaps, unique in its provisions for the quarantining of counties or other areas within the State of Texas. The State Entomologist may impose either a "protective" quarantine or a "restrictive" quarantine in any county or group of counties. A protective quarantine is defined as one which is to keep diseased bees out of any county or other area which may be either free from the disease or in process of being freed by the work of eradication.

Such quarantines as this have heretofore been in force in Texas. That is, whenever the attempt was made to free a county of foul brood, the movement of bees *into* that county was prohibited except upon their being inspected and found healthy. The restrictive quarantine, on the other hand, provides for prohibiting the shipment of bees out of any county or other area in which disease is rampant. The object of the restrictive quarantine is to prevent the general dissemination of disease from any badly infected locality.

In the enforcement of the new law the State Entomologist is given authority to take testimony under oath, to compel the production of books and papers, and require the attendance of witnesses for examination. The sheriffs and constables are required to assist the State Entomologist in the discharge of these and other duties whenever called upon to do so.

Provision is made for the publication of literature of importance to beekeepers.

Provision is also made for the transfer of bees from box hives to frame hives, upon order of the inspector; and in the failure of such transfer the inspector may transfer the bees and thereafter legally collect from the owner the costs of the transfer. In a similar manner the cost of treating diseased bees may be collected from the owner thereof.

The malicious exposure or distribution of diseased combs, fixtures, or infected honey is made punishable by a fine of from 25 to 200 dollars. The penalty for selling or bartering diseased bees is the same. A similar penalty may be imposed upon any one convicted of trying to prevent inspection of bees, either through threats of physical violence or by intimidation.

The foregoing statement includes the most salient points in the law which are of interest to the general reader. Texas beekeepers will, of course, find it to their interest to have a full and complete copy of the law at hand.

As soon as conditions permit, the State Entomologist of Texas (whose address is College Station, Texas) will issue the new law in booklet form for general distribution to the beekeepers of that State, and to such other parties as may be interested in its provisions. We are advised that these booklets will probably be available for distribution by Sept. 15 or 20.

College Station, Texas.

SMOKERS

A Larger and More Efficient Smoker Needed

BY R. F. HOLTERMANN

To me the bee fraternity often appear like a flock of sheep or a cluster of bees especially black bees that have been smoked too much, and are following those who start a run, not thinking whither they are going. What I mean is, that there is too much of a tendency for the majority to follow others regardless of the wisdom of doing so. In this article I am going to undertake to say something to the beekeepers; and if, incidentally, it hits the supply dealers, it will not be the first blow they have had.

My special complaint in this article is the smoker question. In my estimation there is not a smoker advertised by any supply dealer in this continent which can not be made vastly more efficient, especially for the beekeeper who uses such a device hour after hour, and also for one who has only a few colonies, because, as a rule, a beginner is more timid, and requires a volume of smoke at a moment's notice. Let me say here that I am no advocate of heavy smoking. I object to unnecessary smoking; but, nevertheless, there are times when, owing to weather or possibly to some blunder of our own, the bees become almost unmanageable. And it is then that smoke is needed at once, and lots of it.

It is unnecessary for me to trace the history of smoking bees. I believe some trace it away back when the progeny of bees burned to death in forest fires inherited the fear of fire, etc. To my way of thinking, the bees fear smoke because of their sensitiveness, and because of their highly developed breathing-organs which are irritated and stifled by smoke.

It has been my hope that somebody would invent something practical for the apiary with which to smoke bees that would be less trouble than the regular smoker. But my present purpose is to seek to *improve* the smokers. The compartment for the fire has been enlarged somewhat from time to time, and no doubt there has already been a vast improvement; but when a smoker that is always in use requires loading so often, and thus takes valuable time, I have wondered why the capacity for fuel could not be still greater and thus save more time. I therefore ordered Jumbo smokers with the fire-cups three inches longer than usual. These I have used for several years. Last winter I decided that I wanted even a larger fire-cup as well as a larger bellows, and so ordered a dozen of that kind. The chief rea-

son why I ordered these smokers is because the grate at the bottom of the fire-cup is stamped, legs and all, out of one piece of metal, and there are thus no obstructions to the grate to interfere with the draft.

The sample smoker that I received first had a fire-cup $4\frac{1}{4}$ inches in diameter, and $8\frac{3}{4}$ inches long without the cover; and the bellows was $5\frac{5}{8}$ inches wide by $8\frac{1}{2}$ long, the leather being 4 inches wide at the top. This smoker was so superior in the estimation of those helping me, that whenever I was working with the bees I had to have it plainly understood that this extra-large smoker was *mine*.

Brantford, Ont., Canada.

BEE CULTURE AND ITS POSSIBILITIES

A Glimpse from One Locality in the South

BY A. I. ROOT

I said to our people a few days ago that it was no more than fair that the great wide world should know what is being done and what can be done in a wide section of territory; and to commence with I sent a letter to our good friend Marchant, asking him some questions. Below I give you a list of those questions and his reply.

Friend Marchant:

What I should especially like to know is, how many colonies of bees you had to start with last spring; your yield of honey, say in tons, and about how many colonies you have now. If you have sold bees to any amount, of course that would come in. Then I should like to have a brief statement as to the sources of honey, and, if you have no objections, state the price you receive for it. I suppose you do not produce comb honey—at least not to any extent. We should like to know, also, how many out-apiaries you have, and how many colonies you find it best to keep in each apiary. Do you have an extracting-outfit located at each apiary? or do you carry your extractor around to each apiary? Any other items you may think of interest we should be glad to get. One reason I have asked the above is because I fear our people have been a little backward about letting the world know the possibilities of bee culture.

Your old friend,

A. I. ROOT.

Mr. A. I. Root:—The number of colonies of bees I started with last spring was 530. This includes the hospital lot, which was about 40 colonies that did but little toward gathering any surplus.

My yield of honey was about 30 tons. I now have 700 colonies. I also sold 100 1-lb. packages of bees with queens. These came out of this lot of 530. Of course I have a queen-yard independent of this lot. This honey came from the ti-ti, black gum, and willow, but the surplus came from the black tupelo and the white tupelo. It brought me f. o. b. here $7\frac{1}{4}$ to $7\frac{1}{2}$ cts. During spring, or the main honey-flow, I had only two

yards besides my queen-yard. At present I have five outyards, but will unite them into two or three yards next spring.

I find that from 250 to 350 is best for each apiary, but I have had 1000 in three yards, and they did equally well.

I have an extracting-outfit at each apiary.

This lot of bees would have produced several tons more of honey had it not been for a flood in our river during the main honey-flow, and lasting all through the flow. This caused the bees to become demoralized, especially during swarming, when lots of them were lost in the water. Besides, the apiary could not be kept up to the standard, as one could not take care of the swarms. In fact, you could not tell what hive they came from; and, of course, the parent colony, not being operated to cut out all cells, this caused after-swarms and crippled the apiary a great deal. The yard that was overflowed had 380 colonies.

In some correspondence I had with the company some time ago I wrote them my crop brought \$3100. This was sold to one man alone, and I forgot to mention the rest I had furnished to my regular customers.

A. B. MARCHANT.

Apalachicola, Fla., Aug. 25.

[Perhaps I should say right here that many successful beekeepers have objected to printed reports of their work, because there are always a lot of foolish people who will dump a lot of bees right into their neighborhood, thinking, evidently, that it is locality and not the man that "delivers the goods." I heard this same thing in California. In fact, it has been discussed all around; and our neighbor Rood in Florida objected to reports of what he had done, because several times his locality was overstocked by beekeepers moving into the neighborhood or locality. Therefore please do not think of moving bees where these big reports come from until you have first corresponded with the man making the report. In this way he and you could arrange a location that would not be likely to interfere with his own field. See "Overstocking" in the A B C book.—A. I. R.]

Wintering Nuclei in One Hive

I have several nuclei with queens that I wish to winter if possible in order to save the queens. Would it be all right to divide a ten-frame hive into two or three parts with wire window-screen, giving each nucleus a separate entrance? The hive is a double-walled chaff, in protected location.

Indianapolis, Ind., Aug. 2.

W. E. GREEN.

[The plan proposed might work, but it would be our opinion that it would be better to use thin boards, say 3-16 inch thick, in place of the wire cloth.—ED.]

Heads of Grain from Different Fields

How we Give Live-bee Stunts Before an Audience

I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?

Wausau, Wis., Aug. 14.

O. S. LUNDE.

[Generally speaking, we would advise gentle bees for live-bee-demonstration work. However, for our own uses we would not pay any attention to that matter. When our regular men are away we sometimes select the bees at random, not knowing what their temperament is, and we have never had any trouble so far.

We never have fed bees just before operating. It might and probably would have a quieting effect. To handle bees inside of a wire-cloth cage or in a lecture-room, it is necessary, of course, to use smoke in removing the wire-screen top of the box or nucleus. It is our plan to use a big dishpan. Into this we shake one or more frames of bees just as we do during extracting time. The bees are caught in the pan, when it is given a little shaking—not violently, but gently enough so the bees lose their colony spirit. They are then in condition where they can be scooped up by the handfuls. Right here it is necessary to observe caution. Our plan is to roll the bees into a ball by a manipulation of the pan, then cause the ball to roll on the hand. If this is done carefully, there will be no danger of stings. At other times one might scoop them up provided the movement is very gentle and cautious, *being careful not to pinch or crowd a single bee*. We have given some 200 or 300 bee demonstrations of this kind, and have never been stung once.

The next stunt is to dump a couple of handfuls of bees into a hat. Give the hat a little shake downward, taking the precaution to get every bee off the hat-band; then adjust the hat gently to the head. For this purpose a soft felt hat is better than a stiff one. The next stunt is to lift the hat off the head, and shake all the bees from the hat on to the head.

The next stunt is a little more ticklish. There will be no danger of stings providing the operator is cautious. The fingers of each hand should gently comb the bees out of the hair. The few that may be left after combing will gradually leave of their own accord.

Another stunt that we have indulged in occasionally is to put bees in the mouth and let them fly out one by one. But we would not advise any one to practice this stunt unless he knows himself to be practically immune to bee poison. We have never been stung more than once, and yet we have put bees in the mouth many a time.

In giving these various demonstrations we have stepped out of the cage and walked down through the audience. Sometimes we take along a frame of bees, point out the queen, the drones, and the worker bees. If the operator walks slowly down the aisles he can give every one in the audience a pretty close inspection of a comb of bees and the bees themselves.

We recently spoke before about 800 teachers at the summer school located at Wooster, O. A close examination of this frame of bees seemed to please the individual members of the audience as much as any thing. The very fact that the operator has bees on his head and a frame of bees in one hand seems to inspire confidence in the audience; for if the bees do not sting the operator they certainly will not sting the individuals in the audience.

It is usually our custom to tell bee stories while walking up and down the aisles with bees—tell how bees gather nectar; how many trips they have to make to get a pound of nectar; how they pollinate fruit-blossoms; how they sometimes rob from each other; how the queen bee is "introduced" to her subjects. While these things are commonplace to a

beeman they are exceedingly interesting to one who knows little or nothing about bees.

At the close of our demonstration we give the audience an opportunity, by means of little strips of wood, to have a taste of liquid honey and honey butter (candied honey). We also show samples of comb honey, queen-cages, introducing-cages, and other appliances for working with bees.

If one is "on to his job" he will be able to delight an audience, giving them a novelty such as they have never seen before. To be able to handle bees in the manner described, with bees on the head and shoulders and in the hands is profoundly interesting as well as startling to the average audience. We were never stung on any of these occasions except once, and that was when we borrowed an old stinking hat from a volunteer in the audience. It was the first one proffered, and so we could not well refuse it. When we dumped the bees into that hat, its odor seemed to rouse them into a frenzy. We had promised to put a hat of bees on the head, and so we had to "take the consequences." The bees resented being put into such quarters by giving us a number of stings. We took it all calmly, and no one knew the difference except one old farmer who came up shortly afterward and said, "Say, mister, was there one bee that stung you?"

"What makes you think so?" we answered.

"W-a-l-l, mister, you looked as if there might be one bee stinging you."

The fact was, the good wife pulled out, the next morning, something like thirty stings.

We go on doing these stunts, but have been careful ever since to use only our own hat or one that is reasonably clean.—Ed.]

Sending Honey by Parcel Post Not Satisfactory; Two Queens in a Hive

I have tried an experiment with honey by parcel post. Two packages of four one-pint fruit-jars, each jar wrapped once with corrugated paper, stood on more such paper, in a heavy pasteboard packing-box that fitted so that only a few (two or three) crumpled newspapers could be crammed around and between jars and box, and covered with corrugated paper and heavy strawboard, all securely carded, were mailed, one for over 200 miles, the other less than 100. They were plainly marked "Extracted Honey," in large letters. Either package could have been thrown across the room without damage, for no jar would have hit any hard object. Result, two jars were broken in each package, effectually sweetening that lot of mail. I believe that, at least for the present, honey to go safely by parcel post must be in tin containers, with the covers well soldered on, and the whole boxed in one-half-inch wood. My two packages weighed just 11 lbs. each, the limit then.

Some one shut the queen in above the excluder accidentally. That hive grew to four stories before the bees quit flying out, and sent out a big swarm besides. When extracting time came we found only two bodies full of sealed honey, while the lower two had each a queen and the frames were full of eggs and brood.

Florence, Ala., Aug. 18. H. A. MOODY, M. D.

[Packages sent by parcel post must be capable of standing pretty severe handling. So far Uncle Sam has not eliminated the trouble arising from breakage. We do not believe that extracted honey, either in glass or tin, and much less comb honey, should be sent by parcel post, no matter how carefully it is packed. A small sample, say half an ounce or an ounce, when put inside a solid wooden block, will go through all right; but a pound or two is quite liable to be broken. For a further consideration of this question, see Straws in this issue.

The queen that got above the excluder made it possible for another queen to be raised in the hive. During the honey season there may be one or more queens in a colony, providing they are separated by a perforated zinc; but as the season winds up they will all be killed off but one. Experience has shown that it would be very desirable if we could arrange to have two queens in a hive; for then it would be possible to have big colonies, and large colonies are the ones that gather the honey. If one queen should die suddenly, the other would be immediately available, and this would be quite an advantage.—Ed.]

Producing Comb and Extracted Honey, and the Prevention of Swarming

As it is quite possible to control swarming with two nine-frame-story Langstroth depths, since the queen does not occupy half of the upper story with eggs, wouldn't a half-story of five-inch frames, nine-frame size, on top of a nine-frame Langstroth-depth brood-chamber, and one or two comb-honey supers, answer the same purpose of swarm control? One shallow extracting-super and one comb-honey super would give a depth of about ten inches instead of the Langstroth extracting-size of $9\frac{1}{2}$ inches in depth. As I am a comb-honey producer I should greatly prefer the shallow extracting-super to the Langstroth extracting-super if it has the same power to control swarming, as it would leave me room for more comb-honey supers.

Chichester, Que., Aug. 1.

ALF. POTVIN.

[The shallow-depth super, if the combs were fully drawn, might do nearly as well. Indeed, it might be even better in a moderate honey-flow; but in a heavy honey-flow the combination of the extracting-super and comb-honey super, with foundation in the sections, would not be equal to a full-depth extracting-super with drawn comb for the prevention of swarming. One of the secrets of swarm prevention is drawn combs placed on the hive when the bees need it for room, and before they start building cells. The giving of a half-depth super of drawn comb and a super of sections might answer for a few days; but when the extracting-combs are fairly well filled, the bees might hesitate a little before drawing out foundation in the sections; and that hesitation might cause them to start preparations for swarming. The matter can be helped a little by lifting the super of extracting-combs when it is partly filled, and putting the sections under. But if the extracting-combs were old, the bees might darken the combs in the sections slightly. In using extracting-combs in connection with sections, the former should be almost new—clean and white.—Ed.]

Preparing for the Next Season's Increase in September

My apiary of 125 colonies is located forty rods from our residence, with an orchard on the north and a building at the west, so that there is good protection on these two sides. The bees have always wintered well in this place, but I always make sure that each colony has plenty of stores and that they are in prime order in the fall. Last year I put 80 colonies in the cellar and had 45 packed on their summer stands for the purpose of making increase the following season.

Since keeping bees I have made my increase by selecting a strong colony having a young prolific queen of the previous season's rearing that has been tested long enough so that I know she is prolific. After choosing a number of such colonies for increase the next season I feed them during the month of September enough to insure brood-rearing until I have to provide second brood-chambers and combs to keep them from swarming. In the mean time I feed some of the colonies that I expect to put into

the cellar enough so that they will be sure to fill and seal five extracting-frames.

About the last week in September I take the upper brood-chambers off the prepared colonies and shake the bees in front of their hives and give them the extracting-supers each containing five combs of sealed honey, prepared for them as stated above. Then I put four quilts on top of the escape-board, then another empty super which I fill with very fine chaff. After this I fasten two-ply roofing-paper around the hive, with four cleats, allowing it to extend above the top far enough to put in some more chaff. Then I fold down the paper; and, lastly, tie a square of paper over all with a piece of cord.

Colonies so prepared winter safely and come out in the spring so strong that I can build them up to three colonies by the 15th of June strong enough to store honey in the supers. Bees thus treated seldom make any attempt to swarm, but will work nicely all the time.

Yorktown, Ind.

J. W. DAVIDSON.

Experiences of a Sixteen-year-old Beekeeper

I am only sixteen years old, but have kept bees for two years. Three years ago last fall my father bought a colony of bees in an eight-frame hive. In the following spring, when the bees had begun to fly, a beekeeper from a neighboring town visited us and showed us how to open the hive, how to inspect the combs, and how to find the queen. He also told us that we might expect the bees to swarm very soon, and advised us to purchase of him one of his twelve-frame hives, and transfer the bees into it, explaining that they would be less likely to swarm from such a large hive. But they evidently had contracted the swarming fever before we changed the hives, for they soon swarmed. A little later they cast a second swarm. We failed to hive either of these swarms, because we were not at home. Probably because they were weakened by excessive swarming, the bees failed to store any surplus honey in the super that year, though we took out two full frames of honey from the brood-chamber, and packed the two spaces on the outside with dry leaves, using division-boards.

The bees came out the next spring in excellent condition. My father, a little disgusted at securing so little honey, turned the bother of the bees, as he called it, over to me for the following year. I studied the A B C and X Y Z of Bee Culture through many of the long winter evenings, and soon had the "bee fever."

That year, 1911, was well known for its long dry spells. The beekeepers in this locality not only failed to get a surplus, but were obliged to feed their bees in order to keep them from starvation during the following winter. Many of the old-timers here were surprised when I told them that I had taken off ten pounds of section honey, and about twenty-five pounds of honey in frames, besides securing a winter swarm, and that I had left honey enough to winter the bees.

The next year, 1912, I secured 162 marketable sections of honey and 20 lbs. in large combs, all from my twelve-frame hive. My smaller colony came through the winter in bad shape, but built up in time to gather enough for winter, and a small surplus besides.

In my comparatively little experience I have found large hives to be the best. The bees seem to winter better, breed earlier, build up faster, and are stronger in numbers when the flow starts than the bees in smaller hives. I would rather have the twelve-frame hive, standard, than the eight or ten. There is less swarming, and what swarms do issue are large ones. Perhaps an older beekeeper could subdue swarming entirely with the hive I use. The only objection I have to the twelve-frame hive is that two bee-escape boards must be used side by side, instead of one, but this is a small matter. My super holds ten rows of sections, four in each. I

have used both the 4 x 5 and the square section; but I like the tall one better, and shall use it entirely next year. In the sections I use starters, but full sheets of foundation in the brood-nest in order to avoid drone combs. I gave most of my honey away, but sold some at 25 cents a pound, and cleared about \$10.00.

ADOLPH C. KROLL.

Northampton, Mass., March 10.

Why the Bees Die that Accompany the Queen

What causes the bees, accompanying a queen in shipping-cage, to die while being introduced? I have gotten of you three queens this summer. In the first case not a bee died. With the second about one-third of them died after the cage was put in the hive during the time the queen was being released; but the queen was all right so far as I know. With the third queen, about half the bees died in the cage after being put in the hive; and, fearing the queen would die, I released her. She was favorably received, but died inside of 24 hours. Have you had such experience?

Asheville, N. C., Aug. 2.

O. BROMFIELD.

[As a general rule a queen-bee will stand longer confinement in a mailing-cage than any of her attendants. Whether this is due to the fact that she is more vigorous than they, or whether it is because they feed her and thus use up their own vitality, we can not say. The probabilities are that bees in the hive during the interim of confinement feed the queen new honey when they would not feed her attendants. The candy in the cage becomes hard, and, unless usable to the bees, it might cause them to starve; while the queen, favorably received by some of the workers of the hive, would be lavishly fed. It is a well-known fact that the bees accompanying the introduced queen will die, as a general thing, before she is released.—ED.]

Uses for Propolis

Having occasion last spring to graft a couple of fruit-trees I got together my tools, but could not find the grafting-wax. After a search I found a lump about the size of a base ball. Being a little hard I warmed the wax, and worked in a little linseed oil. When the weather warmed I noticed the bees apparently helping themselves to the wax around the grafts, so I lightly touched it on top with a little carbolic emulsion that I happened to have left after treating cabbage and cauliflower for root maggots. Some weeks later, on looking through my tool-box I found a ball of grafting-wax intact. Then what was it I had used for grafting? Propolis, and it worked finely. Since then I have used it thinned down with linseed oil for painting wounds when pruning fruit-trees. It also makes a good tanglefoot for flies if warmed and thinned with molasses; then spread it on manila paper.

GEORGE H. BEDFORD.

East Stroudsburg, Pa., July 26.

Wintering in a Room Kept Cool with Ice

Although I am a beginner with bees, I will give here my experience in the past winter. I have six colonies which I have been wintering in a cooler used for butter in the summer. I placed the hives on a board about two feet from the bottom floor, and have left the entrance open the whole width of the entrance of the hive. The temperature has been around 28 to 30 degrees most of the time. The colonies all had a good supply of honey gathered from the field. Out of six hives I do not think that I lost over two quarts of bees that died from old age.

The cooler is cooled artificially, although in the fore part of the winter there was no ice in it. But about the middle of February the temperature was a little higher—about 32; so we got the ice into it,

and it then kept just 28 degrees for weeks. The room is 8 x 10 x 7 ft. There are four spaces between the outside and inner wall, lined with good building-paper. There is a cool-air inlet at the bottom, and an outlet at the top four inches wide by the whole length of the cooler, with a trap-door at the inlet and one at the outlet so as to open and close as the temperature goes up and down. The outlet from the roof runs up high enough so that there is a good draft. The inside of the cooler is always very dry.

Malone, N. Y., March 17.

J. N. VASSAU.

Another who Winters Bees in Cold Storage

I sold a colony of bees to Mr. Henry Schneider, of Pottstown, last fall. He is treasurer of a cold-storage plant, so he put the bees in cold storage in a room where the temperature is kept at 32 degrees. They weighed 56 pounds in the fall. He weighed them Jan. 4 to Feb. 24. They consumed 3 pounds of honey in that time. We took them out March 15. Then they weighed 49½ pounds. They came out fine and lively.

W. B. REITMEYER.

Pottstown, Pa., April 2.

[Wintering bees in cold storage is rather startling. In both the above accounts it appears that the air was fresh and dry. These experiments do not prove, therefore, that a temperature in a bee-cellar below 35 degrees does no harm.—ED.]

Queen rearing; No Difficulty in Getting Cells or Virgins, but Can't Get Them Mated Fast Enough

We have had no trouble to get the cells and to hatch the virgins; but when it comes to getting them mated, it's a different proposition. I notice in GLEANINGS where you say that your basswood apiary will produce 3000 queens besides its full quota of honey. I should like to know how you can produce and mate that many queens from a yard and still get its full quota of honey; for by any system of mating that we have used, we have always found that it takes considerable strength from the bees to make the nuclei and mate the queens. Do you still use baby nuclei? I thought I saw in GLEANINGS a while back where you claimed that the two-frame nuclei of standard size was the best, and that the babies were too small, troublesome, and fussy. Now, to take two frames of brood, bees, and honey from a colony here just before a honey-flow weakens it so it will not store as much honey as it would have by several pounds. I have had no experience with the baby nuclei; but if they're a good thing I might consider adopting them provided you could make them to dovetail in with the Danzenbaker hive. We have used mostly, to mate our queens, two frames divided off to one side of a colony with entrance in the rear; but it leaves the brood-chamber of the main colony too small, besides weakening it somewhat to get the nuclei started, and interfering with uniform storing in the super above. The best method that we have found to mate queens is in connection with increase, when we want to fill up empty hives. Just divide the hive half and half with one entrance in the front and the other in the rear, and put two frames of brood and bees and honey in each half with a ripe cell, or a virgin.

Now, I had thought that, if you could make us a combination nucleus mating and shipping box, of two and three frame capacity for the Danzenbaker frame, then that, together with our divided empty-hive system in connection with increase, might be the best systems for us to adopt. Then by one system we would be getting increase and queens, and by the other we would be getting salable nuclei and queen.

We should like to know how you mate your queens so inexpensively, and also to have your advice as to

the baby nuclei, and how best to mate queens in large numbers, as we have been literally swamped with orders, and could have filled them all but for our mating troubles.

We should like to have a system of mating by which we could secure our full quota of honey, or nearly so, and still get our queens mated.

LATSHAW HONEY CO.

Carlisle, Ind., July 30.

[This subject of mating is a science or a trade in itself. In the first place, for the rearing of drones you must have queens *two* years old, of fine stock, and give them drone comb every now and then. These colonies should never suffer from want of stores; or rather, we should say, after the season for honey coming in stops they should be fed *gradually and continuously*, otherwise the bees will kill off the drones. A drone-raising colony is a good deal like a cell-building colony—both must have a continuous supply of nectar or a syrup. For feeding we use about two parts of water to one of sugar in a Boardman feeder, all the holes soldered up except one or two.

With the twin baby nuclei you can mate more queens for a given number of bees for a given amount of help than from the same number of full-sized two-frame Langstroth nuclei. It is less trouble to introduce virgins to the small number of bees; takes less time to find the queens, and less food or syrup to take care of them. But one trouble with the baby nuclei is that queens must be taken out as soon as the queen begins laying. Unless you can have your orders regulated to come in just as fast as you can raise the queens, you must arrange to have the queens as fast as they begin laying in the baby hives kept in larger nuclei. This is so inconvenient that many queen-breeders prefer full standard Langstroth frames, two in number, for a nucleus.

We do not believe it practicable to make a combined nucleus and shipping box, as their function is so entirely different. For your purpose we think it would be more satisfactory for you to have two-frame nuclei, either in a single box or two nuclei in an eight-frame hive-body with a close-fitting division-board between. The entrances should be at the opposite ends of the hive. Such nuclei have the advantage of combined heat, and will hold the queens until you can use them for orders.

You might find it a little more satisfactory to come here for a day or two and talk with our men. We have no trade secrets but that we are willing to give to the public, and should be glad to see you or any of you at any time.

We use both kinds of nuclei for mating queens—the twin babies in the yard where we raised queens only, and the full-sized two-frame Langstroth (two in an eight-frame hive with a tight-fitting division-board between), at our other yards where we raise queens, nuclei, and bees for pound packages. The full-sized nuclei can be used for the nucleus trade, and sometimes they will furnish one pound or half a pound of bees. In good seasons the nucleus frames at our yards are extracted, as queen-rearing operations can not go on in a nucleus where the queen is honey-bound. When the baby nuclei get overfilled with honey we take out one frame of comb and put in an empty one and hold the filled one as a reserve, to be used when needed later on.

You do not understand how we can get honey from an apiary where we are raising queens from baby nuclei. Easy enough. The cell-builders and other colonies held in reserve for cell-building purposes must be strong. Such colonies will produce honey the same as any strong colony. Some years, like this season, it is not necessary to feed them any appreciable amount. This season honey began coming in almost from the time of fruit-bloom to the close of sweet clover, which is usually our last

supply of nectar. Cell-builders will swarm unless they are kept down by extracting, and hence the colonies at our basswood apiary were extracted. They were thus able to produce their full quota of honey.—ED.]

The Cheapest Way to Ship Bees Long Distances

I have about 100 colonies of bees; and as I can not sell them here for as much as I can get for the honey that is in the boxes I am taking the honey from them.

I am going to move back to Pennsylvania, and thought it possible to save the bees and express them through. My idea is to make a box, say about seven feet long, out of light material, and divide it into about 18 compartments, five by five inches; put in a pound section of honey for the bees to feed on, and put the queen with, say, two or three hundred bees in each compartment. On arriving in Pennsylvania I contemplate purchasing enough bees to take some racks and put in the new boxes in which I place my bees when taken out of the box in which I ship them. Of course I shall expect to feed the bees through the winter.

Hamilton, Mont., Aug. 8. C. A. MARKSBURY.

[Your plan of expressing bees back to Pennsylvania in long boxes we do not think would be practicable. You would have difficulty in uniting them to other bees on arrival in the East. Would it not be better for you to advertise your 100 colonies at a low price, sell them if possible, and take that money to buy bees in Pennsylvania when you go back? Your express on such packages of bees would be considerable; and our experience convinces us that many if not most of the bees would be dead on arrival at destination for this reason:

Combs in the sections will not stand hard banging; and the result is that they would be broken out and many of the bees in bad shape. It would be much more practicable for you to shake your bees into 3-lb. packages, as was illustrated in GLEANINGS in the April 15th issue. We have had phenomenal success in shipping bees this way, but found it necessary to use a bottle of water in connection with the candy.—ED.]

Early Cutting of Alfalfa Means Less Tonnage of Hay

The reason that the farmers of Colorado cut their alfalfa before blooming is because their customers, the dairymen, want it that way, claiming it is a better milk-producer when cut before it blooms. No doubt Mr. Turner could induce some of his neighbors to let their alfalfa go to bloom by paying them to do so. Cutting alfalfa before it blooms gradually reduces the tonnage, and eventually kills the plant altogether.

Glenrock, Wyo., Aug. 22.

J. E. HIGGINS.

Wintering Surplus Queens in Nuclei

I find it a good practice to winter over a number of nuclei to provide for any loss of queens that may occur in the apiary; and if there should be no such loss, these nuclei serve a good purpose in strengthening up weak colonies in the spring. They are nice, also, for mating early queens, or they may be left to grow into strong colonies for the buckwheat flow.

Ithaca, N. Y.

E. L. DRESSER.

The Connecticut Foul-Brood-Inspection Law

I have read your editorial note regarding our apiary-inspection bill. The original bill asked for an appropriation of \$1500 annually, but this was reduced one-half by the appropriation committee.

New Haven, Ct., July 30.

W. E. BRITTON.

Our Homes

A. I. Root

Know ye not that your body is the temple of the Holy Ghost which is in you?—I COR. 6:19.

Wash ye, make you clean.—ISA. 1:16.

KEEPING THESE GOD-GIVEN BODIES OF OURS IN GOOD REPAIR.

Terry and I have a pleasant challenge, one with the other, as to which one will live to be a hundred years old. Now, we are both professing Christians; and in our teachings, if we do not honestly own up when we get sick, we shall not be living up to our profession as health teachers or as followers of the Lord Jesus Christ. Doctors and professional nurses, if they wish to be consulted as authorities, ought to be very careful about getting sick. If my good friend and neighbor Terry should get sick down would go his teaching, or at least they would go down a little way. Of course, he does not charge any big fee for his instructions, and, in fact, he does not charge any thing, so all his healing is, to a certain extent, like that of the great Master, who did his work when on earth "without money and without price." Terry must *not* get sick; in fact, I have felt sure the great Father would indorse the great truths Terry is giving us, by giving him health. Well, with this preface I have made another great discovery. It may be new to some of you, at least, as it was new to me.

To be honest, I do have spells of indigestion; and I had such a spell lasting several days in July. I first cut off every thing sweet. Then I tried going a little hungry; but the fermentation in my bowels did not let up until I had several meals of pure lean beef on the old Salisbury treatment. This got me in better shape, as it always has done. But still I had the bad taste in my mouth when I got up in the morning. When my digestion is real good my mouth is always sweet and clean—like a baby's, for instance. Perhaps one who is 74 years of age can not expect his breath to be as sweet as that of a baby; but I think it ought to come somewhere near it.* Well, when my teeth needed some repairs I at once went to a dentist. If we are going to chew every thing until it is liquid or semi-liquid we must have good teeth. This dentist is a

* Should God in his loving providence permit me to reach the age of eighty or ninety, I am hoping and working and praying to be able to keep clean, pure, and sweet, in body, mind, and spirit. I fear old people oftentimes get to be careless about their dress and personal habits, etc., just as I have been careless about my teeth. I have been scrubbing my body daily, from the top of my head down to my toes, but forgetting, ignoring, and overlooking the teeth and mouth—the "gateway," as we might call it, of every thing taken into the stomach in the way of food to keep up that "storage battery" of health and strength.

new one, or new to me. He is a young chap, and I think he is pretty well up to date. The first thing he said when he looked into my mouth was, "Mr. Root, when did you clean your teeth last?"

I replied, "My good friend, I am ashamed to say that I forgot to clean them, as I fully intended to do, before I started to come here; and, to tell the truth, I am afraid it is some little time since I gave my teeth a good brushing." Mrs. Root keeps scolding me, and usually brings me my tooth-brush, tooth-paste, and a dish of water on Sunday morning before I go to church, saying that I ought to clean my teeth at least every Sunday morning since I insist on refusing to clean them once or twice a day. Well, the dentist went on to say:

"Mr. Root, I know you will excuse me when I tell you that, if you let your teeth go in the shape they are now in, it is a wonder if you do not have indigestion. The matter collecting in the cavities in your mouth you can not very well get out with a toothpick. It will begin to ferment over night; and if you chew your food ever so well at your breakfast next morning, this matter from the teeth is mixed with it, and will keep up the fermentation in your stomach and bowels. If you wish to preserve your health, and live to be a hundred years old, as you and Terry have talked about, you must clean your teeth thoroughly every day."

Dear friends, I want to make two apologies right here. James enjoins us to confess our faults one to the other; and while I am ashamed to make the above confession, I think that, under the circumstances, it is my duty, and that it will do good all around.

The other confession is (and I wish to include an humble apology to my young friend the dentist), all at once Satan put it into my head that this dentist, perhaps, had tooth-brushes, tooth-powders, or tooth-paste for sale. I had been to two different dentists and paid them quite a little money within the past year, and neither one of them had said a word about my unsanitary teeth. I said, "My good friend, do you sell tooth-brushes or tooth-paste?"

"Nothing of the kind. You can get the best up-to-date implements for the care of the teeth at any of the drugstores."

Somebody has been mean enough to insinuate that dentists would lose a chance of getting jobs (with big pay) if they, like our physicians, should be too vehement in urg-

ing that "prevention is better than cure." Let us now go back to that bad taste in my mouth.

I think I have mentioned that, in eating my apples, I greatly enjoy a little bit of cheese—say half an ounce. Well, when I had that severe spell of indigestion, each morning when I awoke I could still taste the cheese in my mouth. I told Mrs. Root that I believed this had something to do with my spells of indigestion, and that I would try dropping off the cheese and eat only apples. Well, it did stop the "cheesy" taste; but there was still a bad taste in my mouth that I knew was not right. Now, what do you think? When I ate the cheese, even though I chewed it until it was almost liquid, it got between my teeth and remained there all night, and, of course, it resulted in a bad cheesy taste in the morning. I hope you will excuse me, dear readers, for going over this matter so much in detail; but my "great discovery" comes in right here. I went to the druggist and got the best up-to-date tooth-brush he had. Then I got the very best tooth-paste, and followed directions. I ate cheese, all I wanted, with my Red Astrakhan apples—seven or eight good big-sized ones—and I can honestly say I never enjoyed any food more in my life. I never enjoyed the most elaborate dinner more than I did those Red Astrakhans and Yellow Transparent apples. Before I went to bed I scrubbed my teeth and mouth most thoroughly. The next morning there was no bad taste whatever, and my digestion now is just perfect. I can eat raw tomatoes with sugar, pepper, and vinegar, or with sugar and cream for dinner, and they do not trouble me a bit. I eat peas and beans in moderation, and green corn; and I am satisfied that at least a great part of the improvement has come from thoroughly cleansing my teeth and mouth, finishing up with plenty of pure soft water.

May God be praised for our dentists and physicians who are not only able but willing to speak the plain truth when caring for these bodies of ours.

Let us not be weary in well doing; for in due time we shall reap if we faint not.—GAL. 6:9.

I have been reading the Home papers with great interest this past year; and as I need some advice I thought perhaps you could help me.

My father was a beeman in Barry Co., Mich., and took GLEANINGS as long as I can remember, and I used to read the stories written by "Rambler," with great interest when a small lad.

When I was twenty I started for myself and hired out to work on a farm for a neighbor, for, like most boys, I thought my own father's business was not as good as that of some one else. I had no bad habits; and as I got good wages I soon saved enough

to make a first payment on a little farm, and soon had some stock, chickens, and bees. I was thrifty, and every thing turned into money that I took hold of; but I was very discontented in living alone; and as every one kept telling me I ought to get a wife I soon grew to think so myself. I gave my heart to God, and have tried to serve him in my every-day life, and I don't know that I am doing right in writing this, as he has never failed me; and as I have never yet gone hungry I have no proof that I ever shall.

But to go on with what I started to tell you. I had almost paid for my little farm when a cousin came to visit me from the East, and wanted me to go back East with him and see some of the world; so, as I had a chance to exchange my farm for a cheaper one that would put me out of debt, and give me a little to the good, I made the deal, sold all my personal property, and went to New York. I liked the East, and decided to buy a cheap farm in New York; but when I came to sell the farm I had in Michigan I found that the title was not good; and as the party who gave me the deed had been dead for some time I had no redress and lost one thousand hard-earned dollars. I then had left only about two hundred dollars, and I decided to hire out to a dairy farmer, as they pay the best wages in the East. I think I overworked a little, for by the middle of September I was sick in bed under the doctor's care; and when I got out the doctor said I must not work at hard work for some time. This took all my hard-earned summer wages, and I was not in shape to work at dairying any more. I always thought I should like the jeweler's trade, so I began to repair clocks and watches. In the mean time I met and married my wife; and after buying our furniture I had very little left out of a declining bank account.

Last August there came twin boys to our house; and through the expense of sickness I have used all the small bank account, and have to get along on what I make from day to day. I now have the trade very well learned, and a very good line of tools; but this town is too small to keep a jeweler, and I have no cash to move to a larger town.

My chickens are doing fine, but I have only a small flock.

There seems no way for me to get where I can stand on my feet, to use a common expression, and I do not see my way clear in the future. Although I am not in debt to any one, I am just to the end of my cash and very little work. As you used to work at the jeweler trade, and have had a wide range of experience, I thought perhaps you might have a word of advice to offer.

Trusting that God will direct you to give me the proper advice, I am yours cordially,
New York.

F. S. C.

After going over the above letter several times I decided that this thing that got our friend into trouble—that is, if he really is in trouble—is the habit of becoming discontented. His losing his farm because the title was imperfect points a moral. When you buy property, have some competent attorney examine the title, in order to be sure it is all right. My opinion is (without consulting an attorney) that his title could have been made good, even though the one he bought it of was dead. Of course, circumstances might prove otherwise. Our friend did a very wise thing in getting married, and I think, also, the great Father above "did a wise thing" in sending the twin boys to that humble home. Below is my reply to his letter. I decided to put it

in print because it may encourage others who are situated in a similar manner. Do not be in haste, dear friends, to think you can *improve* your condition by moving to some other place.

My good friend, while I thank you for the high compliment you pay me in deferring to my judgment, I fear I may not be able to give you the advice you need. First, I am glad to know that you fear God and are trying to keep his commandments; and if you make it a matter of prayer as to what you shall do, I am quite sure you will be directed right.

Yes, the greater part of my life was spent at the bench. When I was climbing down the ladder after putting up my sign as watchmaker and jeweler, a man gave me a job, and I have never been out of work since. One reason is that I would repair any thing, or do any thing to help needy people. I tried hard to make myself useful to humanity. Now, if you are in a small town I feel sure if you try earnestly to do every thing faithfully that comes in sight to help your fellow-man you will find plenty to do, and ultimately get your pay. A great many times I know I spent perhaps hours at a time, and didn't feel that I could conscientiously charge what the job was really worth, especially for something that belonged to poor people; but that sort of work paid eventually. I got a reputation for being reasonable, and being Christianlike in making my charges. In a little while I had to hire help, and this thing has been going on for *sixty years*. Sometimes I feared I was reckless in trying to help people; but my reward came sooner or later.

Ask your wife if I am not right in thinking you should *stick to your trade, where you are*. With the help of the chickens, I am sure you will get enough to do, and will be better off than if you think of changing your location.

A. I. ROOT.

GOD'S KINGDOM COMING: DOUBLING UP THE COUNTRY CHURCHES.

We clip the following from the *Cleveland Plain Dealer*:

A PRACTICAL EXAMPLE.

In an effort to make rural churches unite, to the increase of their membership, economy in church management, and the financial advancement of their pastors, a monthly magazine is collecting statistics as to the number of churches in small towns. The investigators have taken two widely separated States of the Union as a field for their work, and the figures are interesting and suggestive.

Almost every little village that could support one church comfortably has from three to five which only by a stretch of the imagination may be said to be "supported" at all. A handful of people in each edifice, a hopeless, poverty-stricken preacher, a treasury with the minus sign in front of it—these are common conditions.

That such conditions are not irremediable, however, has been shown by a little town in Missouri: and the attention of these investigators might well be directed to that little town. Its name is Alma, and it is to be found only on the largest maps, for its population is only 319. Yet, not so very long ago, Alma was struggling to support four churches. These congregations were Methodist, Baptist, Presbyterian, and Congregational. Last year they just got together and agreed to bury their sectarian differences. They united in one congregation, chose the most convenient church edifice, and hired a minister to preach the gospel to them.

They are doing well in that church, they say. New members are baptized by whatever method they may prefer. Old members are not required to resign their allegiance to their own creeds or articles of faith.

Doubtless the brethren do not agree on certain doctrinal points, but they dwell together in unity for all that. Nobody's theological toes are stepped on, and they are out of debt, and their pastor has a living wage, promptly paid.

"A little child shall lead them," says the Scripture. Perhaps little Alma may yet lead the two and seventy sects into the unity that has been the dream of many Christians.

I read the above with much interest, because in one of my wheel-rides a few years ago it was my privilege to pass through the little town of Alma, Mo. I wonder if some good brother or sister who lives in Alma or somewhere else can tell us what they *call* the new church that was made up of Methodists, Baptists, Presbyterians, and Congregationalists. I have seen several attempts of this sort, and down in Florida they have been quite successful. The only difficulty was in deciding on the name. I think in one case they called this the Union Church. May God speed the work of doubling up.

REMEMBER THE SABBATH DAY TO KEEP IT HOLY.

The following, which we clip from the *Sunday School Times*, explains itself:

WILBUR WRIGHT'S ANSWER.

Today is a sabbath unto Jehovah.—Ex. 16:23. The Wright brothers, the famous aviators (of whom one died in 1913), are clean-limbed and clean-minded. From their father, good old Bishop Wright, they inherit two sterling traits—character and a shrewd business sense. When Wilbur was at the high tide of his first foreign success, and was acclaimed everywhere as "the emperor of the air," the king of Spain came to see his machine. An orderly approached and said, "His Majesty would like to see you fly." "I am very sorry," was the reply, "but we never fly on Sunday."

It is especially interesting to me, because I was so well acquainted with our good friend Wilbur Wright, his father (Bishop Wright), and the rest of the family. God grant that we may have at least a few men left who are not afraid to stand up before men, even kings, and confess their respect for God's holy word.

"PEACE ON EARTH, GOOD WILL TO MEN."

We clip the following from the *Commoner* of May 23. Can not the readers of GLEANINGS give it a hearty amen?

THE NEW DREADNAUGHT.

"Ever since the earliest days men have been building ships. They are still building them; but the ship we are planning is different from the others. Its compass is the heart: its shells carry good will; its missiles are projected by the smokeless powder of love; its captain is the Prince of Peace. I ask you all to drink with me to this new battleship—the ship of friendship. No target can withstand the shots that friendship sends abroad."—Mr. Bryan's toast to the "Ship of Friendship," in bidding good-by to the foreign peace delegates at the John A. Stewart breakfast given in Washington, May 13.

High-pressure Gardening

BARREN CORNSTALKS, ETC.

Just now the whole wide world is interested in eliminating the *hen* that does not lay eggs and the cow that does not give her share of the milk, etc. On page 578, Aug. 15, I have given you a glimpse of my patch of sweet corn. Well, during the severe drouth during the fore part of August our two cows gnawed down their pasture lot so that it was very desirable to give them some green food to keep up the flow of milk; and as their pasture lot was close up to the sweet corn I began cutting out the stalks containing no ears. There were three if not four varieties of sweet corn—Golden Bantam, Black Mexican, and Stowell's Evergreen. Almost every stalk of the Golden Bantam contained one or more ears. But with the two others I found one and sometimes two stalks, quite often, in a hill, with no ear on at all; and I went over the whole patch, cutting out these useless stalks. One reason why I took the time and pains was because I wanted to study the matter. First, I decided the barren stalks were mostly found where there were four or five stalks in a hill, indicating too heavy seeding. But this does not explain it all. Owing to the bad weather I have mentioned, there were many hills with only one or two stalks; and several times when there was only one great stalk in a hill, ten feet high or more, there was not an ear of corn nor a sign of an ear. I think I may safely say that in that patch of sweet corn ten per cent of the stalks were barren.

I once heard Professor Holden say in an address that your seed corn should be grown and saved in a little patch by itself, and that you should take great care to cut every barren stalk before the tassels could shed their pollen. In other words, he claimed that these barren stalks were the result of letting barren stalks stand in the field the generation before. Now, if this is true it is an exceedingly important matter. I have for years gone through our cornfield and selected my ears for planting. A neighbor of ours who got some of our seed corn because his was poor, said he got 49 healthy plants from 50 kernels of corn that I furnished him. Now, this is all well and good; but what is the use of having corn that will grow if ten per cent of the good thrifty stalks bear no corn? And if Mr. Holden is right, we can not afford to get our seed corn out of any cornfield. Our seed must be grown in a piece of corn remote from other cornfields, with the barren stalks or barren tassels carefully cut out. It is too

late now to do any thing this year; but shall we not make careful preparation to have some seed corn next year that will produce one or more ears on every stalk? A neighbor of mine has just told me that he found more barren stalks in the field this year than in any other season he could remember. Is it possible that the cold and unfavorable weather at planting-time had something to do with it? Of course, the above refers particularly to the saving of seed for field corn. I believe the Boys' Corn Club has been discussing this very matter; and these boys are more careful than their fathers have ever been to have the very best seed that care and skill can furnish.

Later.—Since the above was dictated I have been out among our field corn; and the stalks with no ears are not any thing like as frequent as with sweet corn in the garden. In fact, I do not think there are more than four or five stalks in a hundred with no ears on. Where there are too many stalks in a hill the few spindling stalks are apt to be without ears; but this shows plainly that it is the result of overseeding—too many stalks in a hill. But in our sweet corn several times I found four great lusty stalks in one hill, and almost nothing in sight to indicate where the ear ought to be. I think it must be the strain of seed, for our Evergreen sweet corn is worse in this respect than any other one of the three kinds planted on the same piece of ground. Another thing, the field corn this year was planted with a drill, aiming to get a stalk of corn about once every foot. Perhaps such planting would give fewer barren stalks than three or four stalks in a hill, say four feet each way; but by the latter plan, when cultivating both ways we find it much easier to keep out the weeds—that is, much less hand work is required.

SELECTING THE SEED CORN.

The above reminds me that, about the time this reaches our readers, they will need to be selecting corn for planting next year. Do not listen to the old farmers who insist that you pick your seed corn out of the corner. A man of experience may, I grant, pick out better ears simply by the looks as they lie in the crib; but neither he nor any one else can tell by looking at the ears the circumstances under which they were grown. The following, which we quote from the North Carolina Bulletin on the Selection of Seed Corn, touches the point:

Go through the field, row by row, marking those stalks which come nearest your ideal, remembering that if a desirable plant is anywhere near a barren

stalk or one of decidedly undesirable qualities to leave that plant unmarked, because it is in "undesirable company," and has become contaminated.

Probably you think this will not pay. The Corn Club boys think it will pay, and are proving it by growing three and four times as much corn per acre as their fathers.

Later.—The *Ohio Farmer* for Sept. 6 has a most excellent and timely article on selecting seed corn.

They suggest that the ears for seed should be selected before the corn is per-

fectly mature. Go through the field as has been directed; and when you find an ear with environment and every thing else according to your ideas, break down the tassel just above the ear. This is quicker than tying a piece of cloth about the stalk as I have suggested. Then just before the corn is cut (or, indeed, it may be done while husking, providing you have some careful men who obey orders) sort out and preserve these selected ears.

Health Notes

HEALTH FOODS, CEREALS, ETC.

My good friends, how many different kinds of cereals and health foods do you suppose there are on the market in the United States? Well, in my hand I hold a report from the Connecticut Experiment Station in regard to food products and drugs. They enumerate something like one thousand different kinds of flour, cereals, health foods, etc. Among other things there is quite a good-sized list of diabetic foods. In fact, I do not know but half of them are special foods for the treatment of diabetes. Now, this report is entirely unbiased. No one can well maintain that this Connecticut station is prejudiced in its reports and statements, and the report is just about what I expected.

While many of these health foods are really good and wholesome, the price is in almost every case excessive and often exorbitant. Let me say again what Terry and I have so strongly urged: Get some good nice wheat directly from the farmer, just after it is thrashed. Then have a little hand mill, or, better, one run by power if your family is large enough, and make your own graham flour, cracked wheat, etc. This health food, direct from "producer to consumer," is more wholesome, I do believe, than any thing else you can find in your stores and groceries; and you can easily tell how much cheaper it is by weighing the grocery cereal and then weighing the wheat and counting the cost. Now, aside from the matter of cheapness, a great part of the health foods are not at all what is claimed for them in the advertisements. The gluten breads and gluten meals, some of them, are really not suited for a diabetic patient; and when you come to the so-called meltose syrups they are no better than maple syrup or good honey, while the cost is ever so much more. Macaroni, noodles, etc., are probably wholesome enough, but they are tremendously expensive compared with cracked wheat. Terry buys his oatmeal, etc., in quantities, and gets them at very

low rates. You can buy oatmeal by the hundred pounds at a very low figure indeed compared with what you pay at the groceries when you buy it in embellished paper packages. For an illustration, the breakfast foods to be found in our groceries cost from 12 to 65 cts. per lb.; and the farmers who grow the wheat get from 1½ to 2 cts. per lb.; and the wheat just as it comes from the farmer's field is ever so much better to sustain health and strength than any wheat product you can buy, that has gone through the mills to make it into flour, etc. Nuts are a good and wholesome substitute for meat; but the nut preparations on the market cost awfully compared with the expense of grinding the nuts in this same little hand mill. Allow me to copy a little. A manufacturer of malted nuts claims as follows:

Cow's milk is an excellent food for young calves, but it is a very poor food for a human infant, and still less adapted to adult human beings. Thousands of persons have discovered for themselves its unwholesome properties. Malted nuts supplies the place of cow's milk as a liquid food. Its composition is similar to that of milk.

In regard to the above, this bulletin says:

Its composition is not "similar to milk," even considered on the dry basis, as it contains much less protein, fat, and ash, and much more carbohydrates than dried whole milk. Such extreme and unfair statements regarding such a useful food as milk should not be allowed to pass unchallenged.

This food bulletin contains about 100 pages in regard to false claims for foods and drugs put on the market for sick people; and it is altogether a tremendous protest against the fashion of "robbing sick people" by holding out extravagant claims for special food products and drugs, including various wines.

TRUE SCIENCE VERSUS SUPERSTITIOUS NON-SENSE.

There are a lot of old people who probably will never give up their notions about planting things in the right time of the moon, about Friday being an unlucky day, the No. 13 hoodoo, nailing up a horseshoe to

bring good luck, and a whole lot of other things along that line. These good people, honest as the day is long, do not seem to be able to distinguish between true science and nonsensical notions. Just a few hours ago a man whom I have known for years attempted to show me how a peach-tree crotch enabled him to find water. As he walked along over the ground the switch would turn down at certain places. I insisted that it turned because he twisted it with his wrists. But he declared that the crotched stick was what made his wrists twist, and he may have been honest about it. But now listen: When asked why it would not work the same way in *my* hands, he said it would not work with everybody. When I asked why, he said there is more electricity in some people than in others; and this seems to be a widespread notion among many of the older people. Our boys and younger men who are getting to be experts in electricity would laugh at such an idea. It is true that you can put more electricity into one man than there is in another by standing him on a stool with glass legs; but while he is standing on the ground the electricity very quickly seeks an equilibrium. Then this man explained to me how a switch would go down just three times and no more until he changed his position. Then he would do the same thing again when he crossed an underground stream.

I wonder how many of our readers remember the planchette board that made such a stir in the year 1868. Many good people declared that the senseless piece of wood would spell out words. In the same way many good people insisted that the forked stick goes of itself because they unconsciously twist their wrists. Now listen to something more this man told me. He said he could tell the exact number of feet we would have to dig to get water. He does this by setting a tumbler of water on the ground, and hanging in it a button suspended on a thread inside of the tumbler. Pretty soon the button will commence swinging—that is, if the “water-witch” has hold of the string. It will then bump up against the tumbler just the number of feet one will have to dig to get to the water. And then he told me that just recently the button bumped 62 times, and the man found a bountiful well of water by digging *exactly 62 feet.** When he attempted to explain that electricity did it, the subject suggested what I am now writing—the strong contrast between real science and humbug science.

* It occurs to me that it must be the “spirits” that make this button pound out the number of feet down to the water—the same spirits, perhaps, that used to pound out answers by means of “spirit rappings” in 1852.

In real science certain processes take place or work exactly alike in the hands of *any* experimenter. God’s agencies are “no respecter of persons.” Edison has achieved wonderful things by careful study and experiment; and the lines of science are well laid down and established.

As there may be many good friends among our readers who still insist that water-witching is real sense and science, let me explain that some years ago the Department of Agriculture at Washington took the matter up. A number of scientific men went into a field with some of the most skilled water-finders or water-witches, as they are called. Among other tests they tried blindfolding the man to see if he could locate veins of water just the same when led over the route, and he failed, of course, to find where the former stakes were stuck. The two records did not agree at all. The stakes set by the blindfolded man had no relation whatever to those set with his eyes wide open. My recollection is that the greater part of the water-witches decide that, for some unknown reason, it would not work with a blindfolded man; and one good old man came out frankly and acknowledged that he had been deceived all his life in thinking the switch turned down of itself. We can forgive him, even if he had taken money for many long years for locating wells. But another chap, with a different kind of conscience, on another occasion managed to push the bandage out of the way a little so he could get a glimpse of where he was going. Of course the stakes he set tallied. When, however, he was blindfolded in such a manner that such a thing was impossible, he too had to own up that it would not work when he could not see.

The question has often been asked if the switch would turn when walking over a bridge where there is a stream of water. But I think they generally agree that it would not work then. The water must be under the ground.

The way in which people get into ruts or get senseless notions into their heads explains the success of the shameless frauds called electropoise, oxydonor, oxypathy, oxygenator, etc., and the various other things that have been invented for something that has not a particle of sense or science about it. Carrying a lucky stone in your pocket is along the same line. Recently a subscriber sent me a glowing circular with hundreds of testimonials, apparently, of a finger-ring that will cure rheumatism. If the testimonials are not all manufactured, they come from foolish people who imagine the rusty ring wrought

miracles in the way of cure. I hope it is true that the coming generation will not be as easily humbugged by such quacks and absurdities. Educated men and women, and educated girls and boys, at least the

way they are being educated at the present day, as a rule demand sensible reasons before they invest in something that pretends to be scientific when it would not even bear the scrutiny of good common sense.

Temperance

THOSE PICTURES; OUR GOOD FRIEND DOOLITTLE TALKS TO US ABOUT THE PARTNERSHIP EXISTING BETWEEN THE UNITED STATES AND THE SALOONKEEPER.

Dear Mr. Root:—By a strange coincidence I was reading in the semi-weekly *Free Press* the internal-revenue statistics for the fiscal year ending July 1, 1913, when the issue of *GLEANINGS* for August 1st came. I picked out *GLEANINGS* from the other mail, and read the editorials, *Stray Straws*, and then turned to *Our Homes* and the Temperance department, as is my custom. Those pictures took my eye at once, and I said, "How true to life!" Then I turned to the statistics in the *Free Press* (not a temperance paper), and read these facts: "The people of the United States consumed more whiskey, brandy, and beer, and smoked more cigarettes and cigars than in any previous period in the nation's history. The returns show that the government received from drinkers and smokers in taxes, \$309,478,000 in the past year—an average of about \$1,000,000 for each working day in the year, or \$16,500,000 more than during the previous fiscal year, which paid about half the government expenses." Then I turned back to the pictures again, when that saloon front riveted my gaze. I asked, "Whose is that saloon?" and the only answer I could find was, "The government's." The building, bottles, liquors, and tobacco may not be the saloon-keeper's, but the saloon belongs to the United States government. Let the saloon-keeper try selling those liquors without a permit from the government, which is called a *license*, and see how quickly he will "look out from behind the bars." So we have this: \$25.00 paid for a license establishes a *government* saloon; \$1.10 tax procures from the government a gallon of whiskey; \$1.00 a barrel of beer; this in addition to the cost of production of the liquors. And none of that \$309,478,000 could come into the treasury of the government without some one to sell these taxed and licensed articles.

Now, Bro. Root, is it not plain that the *saloon-keeper* is a necessity in the economy of these United States if you and I are to have "half our government expenses" paid? And is it not also plain that the officials in whose hands this matter of tax and license rests should seek out and urge men to sell, buy a license, and pay the tax, that this revenue may come to us and the rest of the people of this United States? Your company would not hire a man to sell honey unless he sought out customers for that honey. And after the saloon-keeper has paid his license and tax to the government, is he not doing a legitimate business in branching and reaching out that he may get his money back and something for a living? Should we not be willing that he do this when he is so useful to us in paying half of our government taxes? Seriously, Bro. Root, I do not like to see that bright boy in these pictures turned into "The Finished Product," but of late it has looked a little out of place for you and me to be "pounding" the saloon-keeper when, at the same time, we are willingly or ignorantly receiving pay to the half of our proportion of the government expenses through the efforts of the saloon-keepers of our land. If we are honest we must acknowledge that the saloon-keeper fills a niche of no small importance in the economy of the United States government. Surely, from the statistics for this last

fiscal year the revenue from our government saloons almost overshadows that from the tariff and custom-house. Are you equal to some plan to save the boy without materially injuring the amount of revenue we are receiving into the government treasury?

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., I have a plan—yes, and may God be praised that there *is* a plan open to us all. The plan is to teach our boys and girls, our old men and women, to "seek first the kingdom of God and his righteousness," and then that "all things shall be added unto you." Yes, those who administer our government and our laws should be taught that, if they will seek first God's kingdom and his righteousness, plenty of money for "revenue," and every thing else will be surely forthcoming.

ONE-THIRD OF THE SALOONS OF OHIO TO BE PUT OUT OF BUSINESS.

We clip the following from the *Wheeling Advance*:

"Law closes 3341 saloons in Ohio; leaves 5144 still doing business."

The above seems too good to be true; but when they come to put on their spectacles and find 5144 saloon-keepers of good moral character I imagine there is going to be more trouble yet, especially if the law is to be strictly enforced, in big cities as well as little ones, as our good Governor declares it shall be enforced. See the following:

SUNDAY CLOSING OF THE SALOONS IN OUR LARGE OHIO CITIES.

I am well aware that it is not a new thing for the brewers and liquor party to make great promises about the "cleaning up" and "law enforcement" they are going to inaugurate. Our readers will also recall what I have said about the efforts of the Baptist Brotherhood to enforce law in Cleveland in regard to Sunday closing. Now, once more please keep in mind that the Governor of Ohio has favored a license law. He thinks it will be a temperance measure; and as he has been most severely criticised on this account he comes out just now in the *Cleveland Plain Dealer* as follows:

"So soon as the State Liquor License Board announces the appointment of county licensing boards I am going to call every county license commissioner to Columbus and talk straight from the shoulder to them," said the Governor.

"First of all, I am going to tell them that the first one of them that permits a violation of license law without taking action against the saloon-keeper who has broken the law will lose his own official head. The law is plain. A saloonkeeper may have his license revoked on a second conviction.

"In regard to Sunday closing, my position is this:

"The success of the whole license system depends on its enforcement. The people of Ohio expected it to be enforced. Every saloon must close on Sunday, and stay closed. This applies to Cleveland, Cincinnati, Columbus, Toledo, and every other large city, with the same force that it will apply to small towns. Ohio will be as dry as the Sahara desert on Sunday."

I hope Governor Cox will excuse me for mentioning right here that the friends of temperance—at least some of them—have been unkind enough to suggest that the above is only for effect; that, notwithstanding such a strong public statement, they fear things will go on after the old fashion, especially as it seems very evident that the mayor of Cleveland is not in sympathy with Sunday closing.

Now, one reason why I have given place to the above is that our Ohio people may know what the Governor promises to do and is *expected* to do. May God help him to make good his declaration, notwithstanding every thing the brewers and liquor-dealers may be able to bring forward to block the way of the enforcement of our righteous and just laws. Will our temperance friends in Ohio see that there are plenty of printed copies of this declaration, and that they are kept constantly before the eyes of the licensing boards of our wet counties?

WHAT SHALL WE DO WITH OUR GRAPES?

Quite a hue and cry has been raised by way of remonstrance against the work of "temperance fanatics" in their determination to ruin the industry of making wine. What will the poor women and children do? The great ranchers of California have immense capital involved for producing grapes to make wine. Somebody suggested that they should make their grapes into raisins. But, if I am correct, the wine grapes do not make raisins. Here is a suggestion from the *Practical Farmer* that solves the problem. Can't you say amen to it?

THE BRYAN BEVERAGE.

It is scarcely twenty-five years ago that we began to hear and talk about "unfermented grape juice." It was about that time that there were a few places in New York city where the juice was freshly pressed out of Concord or other black grapes, and served to thirsty customers at five cents a glass. We hailed the beginning of this enterprise with a good deal of enthusiasm, expecting that so delicious a beverage was bound to appeal to public fancy, and possibly be the means of powerful aid in the fight against the evils of intemperance. Since the days of that very modest beginning, the industry has grown by leaps and bounds, and the unfermented juice of the grape has become a common and popular beverage.

That it is exceedingly wholesome, as wholesome as it is palatable, is not in the least subject to doubt. At one time it was even claimed (with what justification we have no means of knowing) that the fresh or canned juice of the grape is fatal to the typhoid-fever germs. We know that it is a very pleasant summer or winter drink, and that it requires no special skill to put up a home supply if one has the grapes or can get them. If Mr. Bryan's courageous defy of old-established custom will serve to stimulate the use of and call for unfermented grape juice, and make the substitution of this harmless and wholesome beverage for alcoholic drinks fashionable and common, then he has thereby rendered to the country a service that can hardly be overestimated.

Lakewood, O., March 3. J. D. MCCALMONT.

CIGARETTES, AND WHAT THEY ARE DOING IN THIS LAND OF OURS.

I presume our readers have all been shocked by the terrible story of the factory that burned in Binghamton, N. Y., on July 22. Below is a newspaper clipping in regard to the probable cause of that shocking calamity whereby between fifty and sixty women and girls were burned to death:

Some features of the catastrophe were brought out in a statement by President Freeman, of the company which operated the burned factory.

"I was in the office when Mrs. Freeman called to me that there was a fire," said Mr. Freeman. "I ran out on the main floor and saw flames coming out from under the open stairway. Some of our employees are so addicted to cigarettes that, smoking being forbidden in the building, they went out into the alley every hour or so for a puff. I believe one of these, on returning to work, threw his cigarette under the stairway."

The man or boy who smokes cigarettes becomes stupid. His senses are dull; and the cigarette fiends are continually causing fires by their stupidity in cases like the above. The general government is just now leaving almost no stone unturned in the way of prevention of loss of life like the above; but when it comes to whisky and tobacco, and especially the deadly cigarette, it says, "Hands off." Bulletins are sent out discussing habit-forming drugs, but the cigarette is not mentioned. There are millions of money in the manufacture of cigarettes that are to be sold three for a nickel. Nobody disputes the fact as to their bad mental effect on children, and older people, perhaps, to a lesser extent; but comparatively nothing is being done. Why, even the Chinese, in their recent crusade against the opium habit, are going ahead of us. May God speed the day when cigarettes as well as rum shall be handled by our President, and the officials under him, without gloves.

ANOTHER VICTORY FOR TEMPERANCE.

I am glad to tell you that we whipped the saloon advocates soundly. Our county is free from the saloon curse, and I believe it will remain so.

Weiser, Idaho, July 11.

E. A. PADDOCK.